ELECTRICITY ON THE FARM *Magazine*

JANUARY, 1949

Dalia Farm—American style
New Wrinkle In Pig Brooders
Shops Have Electric Insides
Interesting Cabbage Dishes
Here to Stay . . . Chill Chasers

22nd Year . . . . No. 1

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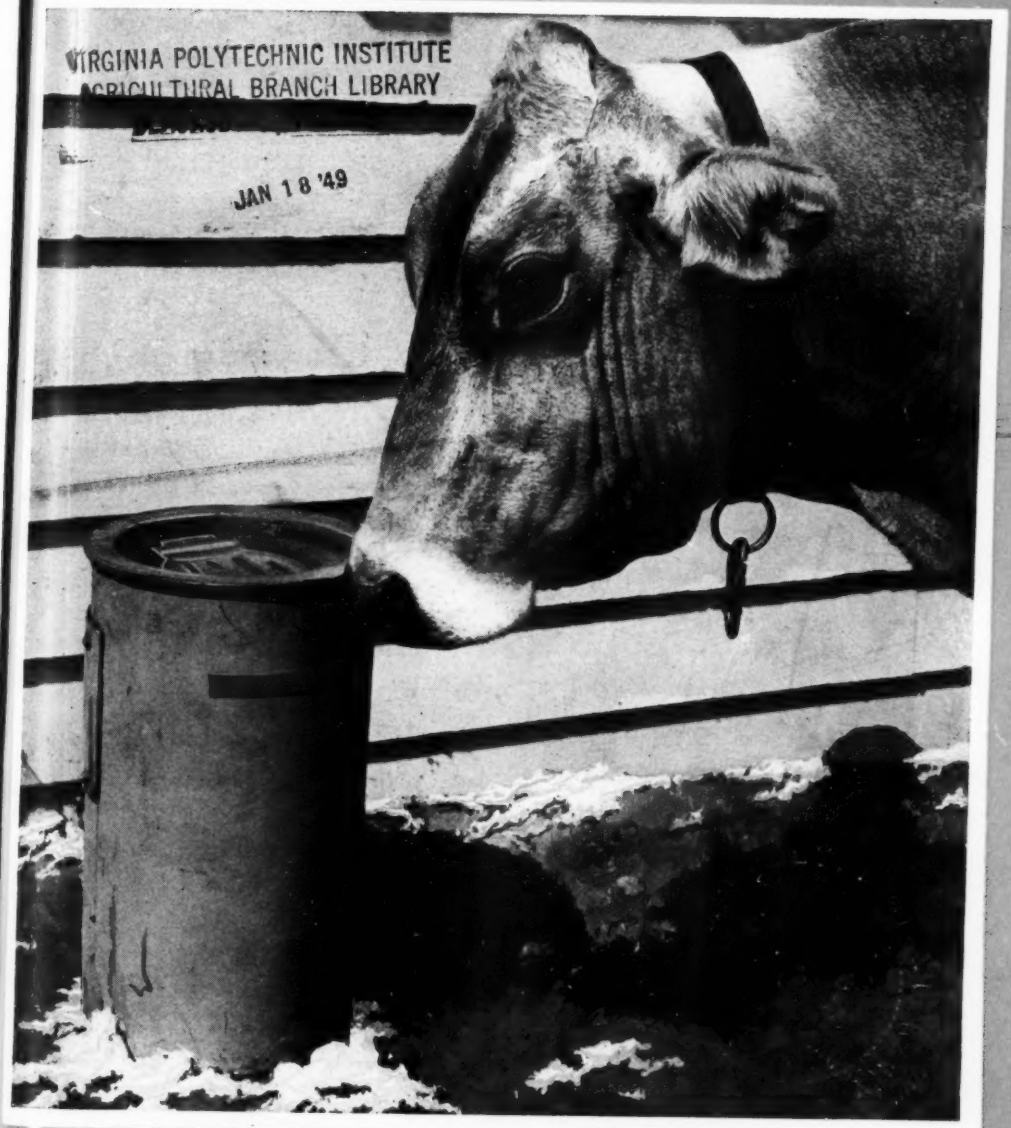

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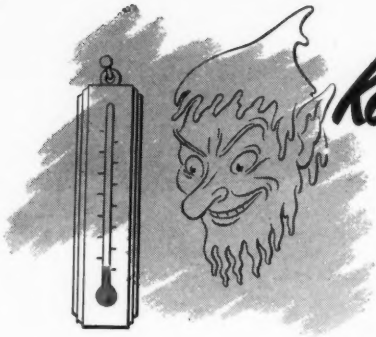

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Ready-made sets are *now available* at your dealer's, including 60′ length of cable with both ends assembled in attachment plug, and complete instructions. Priced about $10.75. *Farm Industry Division, General Electric Co., Schenectady, N. Y.*

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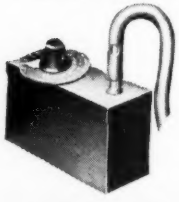

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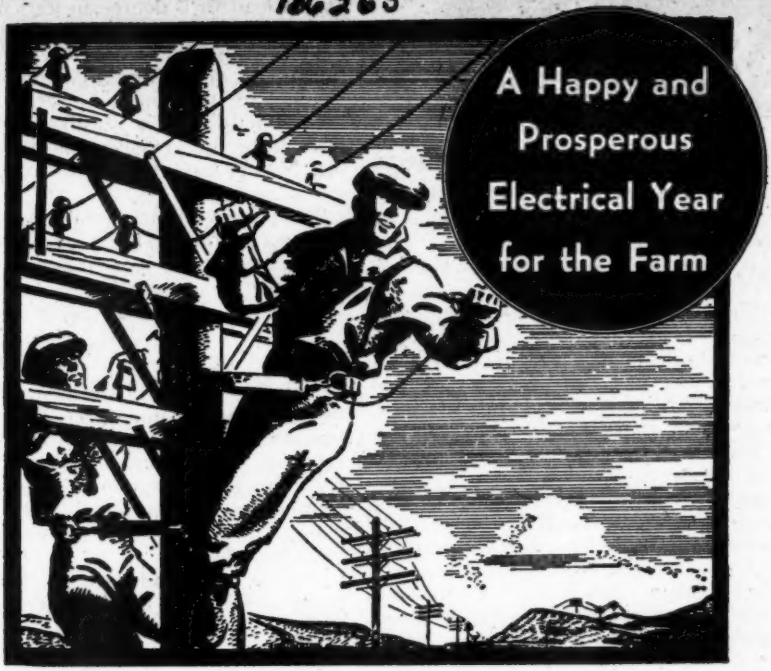

TO HELP YOU MAKE THESE WISHES for a Happy and Prosperous Electrical Year for your Farm come true, we are sending you this national magazine of farm electrification.

Its authentic articles by well-known farmer advisors and workers will help you to get the fullest measure of value from your electric service.

In this and succeeding issues you will find tested ideas for making easier the chores of farm and home management—for adding to your comfort and increasing your profits.

If you have questions or any special problems, please feel free to write or phone us.

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Editor's Chat

COUNTRY CHURCH

Across the street from the University of Missouri is the Bible College of Missouri. It is a small college, but it has a big idea. The big idea is to put new blood and vigor into the country church. It's doing it.

The Bible College gets no state support. It is dependent on contributions and a small endowment. Protestants, Catholics and Jews are all welcome on its faculty. Its teachings are undenominational. In addition to its teaching staff there is an Extension Minister for the Rural Church. He travels and works like an extension specialist. Instead of teaching you to cull hens or build barns, he is sampling the country communities and making "blueprints" and prescribing "fertilizers" for the country church. Listen to some of his ideas:

"A rural minister should have a thorough knowledge of *agriculture* as well as religion and *church management*. . . . The major problem is the lack of adequately trained ministers—men who know the rural community and understand the people. . . . In connection with the religious program, the church should help make religion a vital part of community living by sponsoring 4-H Clubs, extension clubs, other farm groups . . . and all kinds of games—baseball, tennis, basketball, horseshoe pitching. . . . In some communities one active church could easily take care of the congregations of 4 or 5 struggling churches. . . . *One community church* might be able to support a full-time minister." He also suggests that the churches provide their ministers with a rural parsonage and twenty acres or more where they may make part of their living.

That's where the Bible College comes in. It is setting up a 5-year training course for rural ministers. The undergraduate 4 years would lead to a degree in agriculture at the University of Missouri. Options would be taken in the field of religion. A fifth year in the Bible College would complete the college training for the country minister.

It sounds like a sensible program. The Dean of the Bible College of Missouri, Columbia, Mo., is Carl Agee. He's "down to earth" and a crusader.

With the world in an unharmonious turmoil and top negotiators seeming to be able to do little about it, perhaps it is time to apply a little more practical religion at the grass roots. Most of the grass roots grow in the country.

PLANS FOR '49

This first month of the new year is a good time to plan. Planning has more to do with one's success and happiness than forking and cranking has. Winter may be an "off" season for crops and harvesting. It can be the "on" season for the crops and cows and cash to "grow" in one's mind. Without a track, the train is stalled.

This is a reminder about "seed" planting. Some of you need that reminder. It could put dollars in your pockets.

We have just one suggestion for your planning. It will apply whether we have continued inflation or deflation, more grain sent to Europe and China, or a live-at-home program. It is this. We live and farm awhile, then die. We can't take it with us. But it's a grand feeling to so plan and work and live that we can thump ourselves on the chest and say, "I'm Proud I am a Farmer."

OUR PLANS FOR '49

We have made some advance plans. Among them our "Suggestions for Editorial Material" have been rewritten. That is what we send out to people who want to know the kind of articles we use in ELECTRICITY ON THE FARM. We have changed the size of some of the "fields". We are trying to cut down on the length of words and sentences—make things clear. But the heart of the prescription is "Will it really help our farm folks who read it?" If it does, it's good.

Our Best Wishes To All Of You For 1949.

George W. Kable

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IN THE KITCHEN

IN THE LAUNDRY

Even This Chore Is Easy with a Crane Laundrette!

And as for *Mother's* work—well—the *hard* jobs are done! No more running for water . . . no more struggling with a heavy wash boiler. Here at her Crane Laundrette Laundry Tub is all the water she wants—hot, cold, or mixed—right where she wants it.

Room? Say, there's room for *all* the wash in those two big tubs. And the left-hand tub has *its own washboard* molded right into the side.

The Crane Laundrette is sparkling white—and *stays* that way with the swish of a damp cloth. And those Crane *Dial-ese* faucets turn on and off at a finger's touch!

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You may find it costs less than you think to have all this convenience for your farm and home. Ask about it. Stop in at your Crane Dealer's next time you're in town.

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ELECTRICITY ON THE FARM *Magazine*

ELECTRICITY: *Versatile Energy for Many Farm Uses—Power, Light, Heat, Electronics.* Easily adapted, started, controlled: automatic. Labor doer and saver, money maker, and product improver and increaser. Used intelligently, electricity changes the whole aspect of farm life and production.

Dalia Farm - American Style

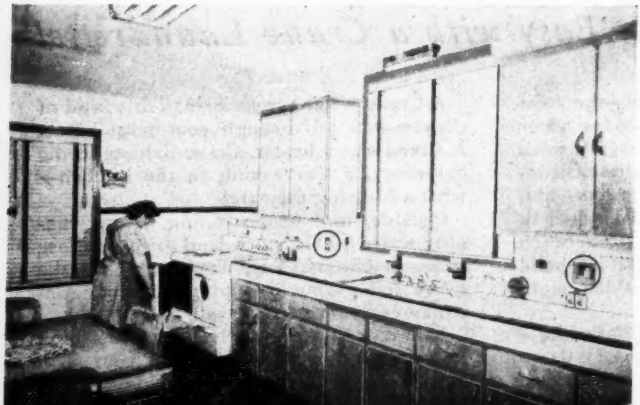
By J. C. CAHILL

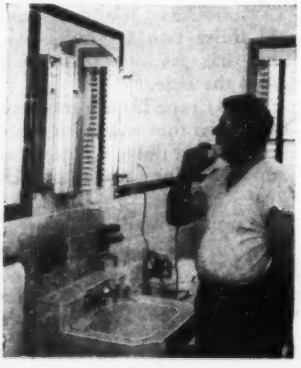
A recent report on farm electrification progress in the magazine Business Week cited the case of the Dalia all-electric dairy farm near Mt. Clemens, Michigan. Here, in the shadows of Selfridge Field, can be found as completely an electrified farm as any in the United States.

Adam Dalia was born in Yugoslavia. He came to Detroit in 1920. With him he brought his dream of becoming an American Farmer. For nineteen long years he worked in the factories of Detroit. By 1939 he had saved enough money to buy a 110-acre farm and he had become a full-fledged American farmer. But Adam's dream didn't end there. He wanted to own a farm that would be a credit to the community and to his adopted country. He had few electrical servants to help him then. The work was hard and the hours long. After struggling through war years, doing the work of several men, Adam finally realized his dream . . . and what a dream!

Old farm buildings were torn down and in their places . . . new barns, a new home, new everything. Prominent in this modernization was the installation of much electrical equipment, dependable and always ready for use. That was in 1947. Today farmer Dalia is more enthused about electrical living than ever. His use of electricity for the past year is estimated by Detroit Edison Co. at about 21,000 kw-hr . . . almost ten times more than the annual farm average of 2,260 kw-hrs. Edison Farm Agents who worked with Mr. Dalia in creating this 110-acre model farm give the following breakdown of the 20,890 kw-hrs used in the last 12 months:

HOUSEHOLD USE	ANNUAL USE in kw-hrs
Water system	360
Range	1,080
Refrigerator	420
Frozen food (walk-in) cabinet	1,800
Iron	240
Washer	36
Toaster	36
Clocks (2)	36
Shaver	12
Radio	120
Television	360
Oil Burner	250
Furnace blower	400
Lighting	1,200
Total household use (40% of total use)	6,350
FARM USE	
Milking machine	900
Milk cooler	2,700
Water system	600
Dairy stable cleaner	540
Hay finisher	3,700
Hay hoist	50
Drill press	30
Air compressor	180
Lighting	800
Total farm use (60% of total use)	9,500
Total use for farm and home	15,850
Estimated off-peak water heater in milk house	5,040
Total estimated use on the farm	20,890





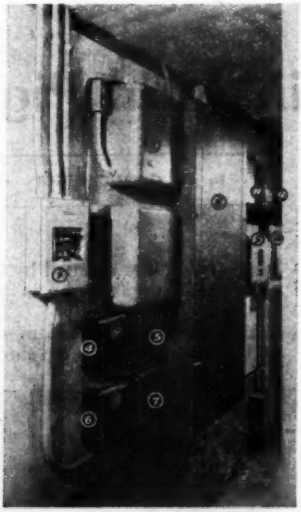
Above: One side of kitchen which is also used for dining. Note the fluorescent lamp in the ceiling, over the sink and over the electric range. There are double convenience outlets over each work surface. **Right:** Adam Dalia was born in Yugoslavia. He worked in Detroit factories almost 20 years. Then he bought a farm . . . *and* equipped it! HE IS PROUD TO BE AN AMERICAN FARMER. In this picture, note fluorescent lighting; electric shaver.

And what does Adam Dalia say about all this? . . . "I consider my farm an industrial plant. And what industrial plant could exist today without modern and automatic devices for saving labor and improving working and living standards? On the farm, like in the factory, it is my opinion that we need to have good working standards in order to keep people in the business. Therefore, in order to stay in the farm business I have equipped my farm buildings with every piece of electrically-operated farm equipment and every appliance that will make my standards of operation the highest and most enjoyable." He says further: "*Electricity on the farm today is a necessity.* In my case, electricity eliminates two men. My average monthly use of electricity is 1,740 kilowatt hours and costs me less than one dollar per day . . . a pretty cheap hired hand and one of the greatest contributions to farm civilization."

Three men do the barn chores. They feed and milk 48 registered Guernseys and clean the barn (with the electric barn cleaner). All finished in an hour or less.

Mr. Dalia has one son, Joe, and a hired man, Loy Umphrey. They practice fast milking and milk the herd of 48 registered Guernseys in less than fifty minutes. Last summer they put up 100 tons of mow finished hay.

In the table of power consumed on the farm, it should be noted that the heaviest uses were for jobs that yielded direct profits. The saving on ice for cooling milk will pay many times the cost of the current used. The hay finisher improves hay quality enough so the electricity becomes an investment and not an expense.

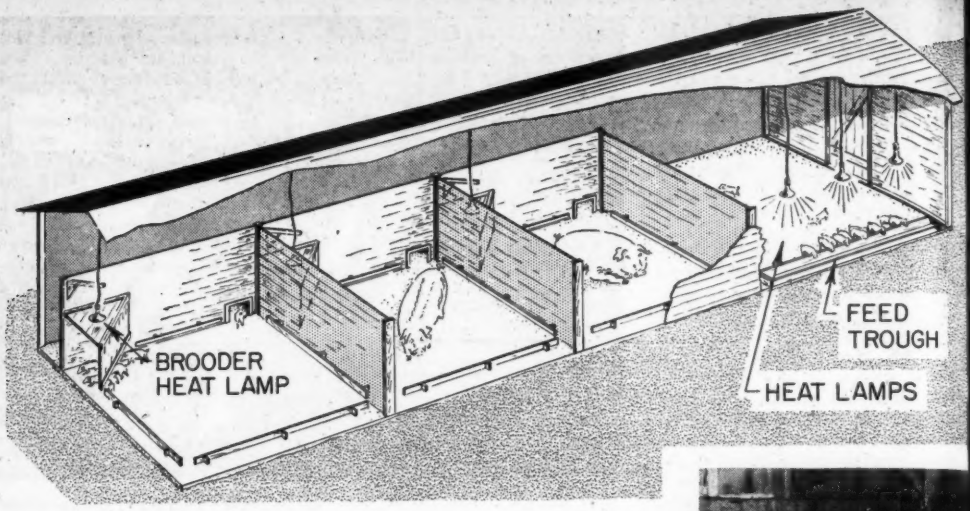


Above: This is the delivery end of the gutter cleaner. The small motor at the top puts the manure into the spreader. **Right:** This is the electrical control board for the Dalia farm. (1) Circuit breakers for lights in barn and milkhouse and for milk cooler. (2 to 7) Magnetic motor control switches; (2) 7½ hp for hay finisher; (3) 7½ hp for 2nd hay finisher; (4) 3 hp silo unloader with push-button control at silo; (5) 5 hp hay hoist—button in mow; (6) 1 hp milking machine—button at compressor; (7) 2 and 1 hp gutter cleaner motors—starter in stable. (8) panel for barn and milkhouse load; (9) 100 amp, 3-pole main line switch for panel 8. (10) 100 amp, 3-pole main line switch for house, shop and granary. (11) 50 amp breaker for upstairs of two family house. (12) Off-peak milkhouse water heater control. The farm has a 200 amp underground entrance service supplied by 4 No. 4/0 wires.

Improvised Hotbed Thermostat

I noticed in your April issue an article on the use of thermostats for electric hot beds and the suggestion that a brooder thermostat in the air above the soil would be much better than no thermostat. I've a better suggestion than that. During war times I set up a hot bed and had trouble getting a thermostat so I mounted a brooder thermostat in a glass jar and buried the jar in the hot bed soil with the open mouth out of the ground. In this way the thermostat was influenced by both ground and air temperature. Replaced it later with regular hot bed thermostat.

HENRY M. WILSON, St. Cloud, Minn.



Above: Layout of the farrowing house. Note the small opening from each pen into a creepway which permits the pigs to get into a feed room where they will not be crowded away by the sows. This feed room also has R-40 heat lamps over the fed troughs. It gives the pigs a better start. **Right:** A big brooder installed in the corner of one of the Hel-Roy farrowing pens. It is a good brooder. The 250w, R-40 heat lamp is high enough up so it will not burn the pigs or straw and will give good heat distribution over the entire hover area. The sow is effectively kept out of the hover but the pigs are attracted in by the light and heat.

New Wrinkle in Pig Brooders

By W. G. BUCHINGER

Royal Holt, owner of the HEL-ROY Farms near Romeo, Michigan, made a hobby years ago of breeding fine Palomino horses, registered Hereford cattle and Hampshire hogs. The hobby has since grown into big business and now Holt spends full time on it.

Roy is a great experimenter. He scoffs at old time animal breeders who say that "good luck" is the most important factor in breeding fine animals.

"There's just no sense," he says, "in accepting as inevitable a certain percentage of mortality in young pigs, horses, or other farm stock. The thing to do is determine the cause, and figure out a remedy that won't cut too far into the profits."

Young pig mortality has always been a problem to the farmer, especially when sows farrow in cold months. The young pigs often die of exposure, or they are crushed by the sow when they "burrow in" for warmth.

Holt solved this problem several years ago with some simple carpenter work and inexpensive infra red heat lamps.

Five foot boards were nailed across one corner of the farrowing pen. They started eight inches above the floor and continued up for two feet. The top of the closed off corner was covered with a triangular shaped board, in the center of

Mr. Holt showing how the heat lamp is installed above a hole in the hover top. The perforated rim distributes a little light in the house. A reflector is not necessary with R-40 lamps which have built-in reflectors. The lamp could be suspended lower down in the brooder opening. The guard rails around the sides were installed before the brooder was put in. They are not needed now.

which a six-inch hole was cut.

A projection type R40, 250-watt heat lamp was hung in the hole about 18 inches above the straw bedding. That's all there was to it. One corner of the farrowing pen became a pig brooder.

The young pigs love it, coming into the pen proper only long enough to nurse, then back into the warm corner.

"We raise about 500 pigs a year," Holt said, "and before using the "electric brooder", losses ran as high as 50%. Now we often raise 100% of the litters and consider a 10% loss high. The 30 to 40% drop in pig mortality makes the cost of the electricity and installation of the brooder a trifling matter. We schedule sows to farrow about March 1st, and then again about November 1st. This way we can sell hogs when they are six months old and take advantage of peak prices when few pigs are being placed on the market."

Mr. Holt further uses heat lamps during the weaning period. By shutting off the heat lamps in the brooder he has no difficulty in getting the young pigs to enter creepways. These creepways lead from a small hole in the farrowing pen to the feed pen, where other R40 heat lamps are in operation. Here the young pigs can eat without being crowded away from the troughs by the sows.

Farm Shops Have Electric Insides

By **WILLIAM H. KNIGHT**

Project Director, Idaho Farm Electrification Committee

There are three types of shops: (1) the small shop, (2) the combination garage or machine shed and shop, and (3) the large, completely electrified farm shop.

Regardless of type there are certain features you will want to consider when you plan your shop.

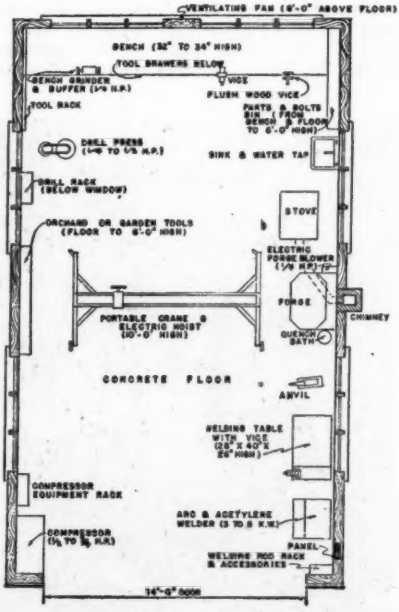
Size and Type

The first step is to plan for enough space to repair your largest machine. For truck gardening or orchard farms, a 16′ x 26′ or 18′ x 30′ size shop may be large enough. For large grain farms with a complete line of tillage and harvesting machinery, a 24′ x 36′ or a 26′ x 42′ shop will be needed. Concrete floors are the most desirable. Doors 14′ to 18′ wide and 12′ to 14′ high should open outward or slide sideways. A wood frame construction with corrugated metal siding and roof offers a practical type of shop.

Lighting

Good natural and artificial lighting is important. Make the window area approximately one-fourth the floor area. Paint the walls and ceiling a light color, and space the windows so as to allow wall area for tool cabinets and parts bins.

Use a 100 watt lamp for approximately every 200 square feet of floor space for your center lighting. Install at least a 100 watt lamp over each permanently placed piece of equipment and over every eight to ten feet of work bench space. Good reflectors improve lighting.


VENTILATING FAN (8'-0" ABOVE FLOOR)
BENCH (32" TO 34" HIGH)
(TOOL DRAWERS BELOW)
BENCH GRINDER & BUFFER (1/3 H.P.)
VISE
PLUMB WOOD VISE
TOOL RACK
PARTS & BOLTS BIN (FROM BENCH TO FLOOR TO 6'-0" HIGH)
DRILL PRESS (1/4 TO 1/2 H.P.)
SINK & WATER TAP
DRILL RACK (BELOW WINDOW)
STOVE
ORCHARD OR GARDEN TOOLS (FLOOR TO 6'-0" HIGH)
ELECTRIC FORGE BLOWER (1/4 H.P.)
FORGE
CHIMNEY
PORTABLE CRANE & ELECTRIC HOIST (10'-0" HIGH)
QUENCH BATH
CONCRETE FLOOR
ANVIL
WELDING TABLE WITH VISE (2'6" X 4'0" EX. HIGH)
COMPRESSOR EQUIPMENT RACK
ARC & ACETYLENE WELDER (3 TO 5 K.W.)
COMPRESSOR (1/2 TO 3/4 H.P.)
PANEL
WELDING ROD RACK & ACCESSORIES
14'-0" DOOR

Small Plant Floor Plan

Electric Wiring

Wiring is most important in an electrified farm shop. A few fundamental rules are:

1. Have special branch circuits for lighting only. Use no wire smaller than No. 12.
2. Have special branch circuits for convenience outlets only. Use no wire smaller than No. 12.
3. Allow no more than ten outlets per circuit.
4. Keep circuits as short as possible, otherwise use larger wires.
5. Plan special 230-volt branch circuits for all permanently installed motors over ½ horsepower, and for appliances of 1,000 watts and over.
6. A special welder circuit of two No. 6 wires and one No. 8 wire on 230 volts is satisfactory for NEMA farm welders of 180 amp capacity.
7. Allow a double convenience outlet for each six feet of bench length, and one for each permanently placed piece of equipment less than ½ horsepower, such as drills, grinders, forge blowers, and similar equipment.
8. Always allow for expansion.

Where a line shaft is used, approximately 50 per cent of the horsepower of the motor is lost in friction through belts, pulleys, and shaft bearings. Therefore, we recommend individual motors for greater efficiency.

Heating and Ventilating

Some sort of heating system is desirable for winter months, and a ventilating fan with at least a ten inch blade for summer conditioning and for exhausting smoke and odors.

Benches and Tables

Good work benches and tables properly located in front of windows for daytime light, and near related equipment for convenience will make shop work much easier. Bench heights are important. The general rule is: "Build them high enough so you don't have to stoop or bend your back, and low enough so you don't have to lift your arms to do your work."

Here are some recommendations for benches and working surfaces:

1. Electrical and general repair bench—32″ to 34″ high, 28″ to 30″ wide, with a wood top.
2. Welding table—26″ to 30″ high, approximately 28″ wide and 40″ long, built of metal with a fire brick top.
3. Pipe vise bench—30″ to 32″ high, 26″ to 28″ wide, built of wood or metal.
4. Battery table—24″ high, 26″ to 28″ wide, covered with an acid resistant material such as hard rubber or heavy glass.
5. Anvil—top should be 28″ to 30″ high.

Parts Bins and Tool Racks

Bins between the windows give convenient storage space for spare parts for repair work and emergency jobs. Wall tool panels are highly recommended, and black silhouettes painted behind each tool will aid you in returning it to its proper location.

Equipment Arrangement

The proper grouping and arrangement of your equipment after your shop is built will add materially to your convenience and efficiency. A suggested grouping plan is as follows:

1. All Welding Equipment—Arc Welder, Acetylene Welder, Welding Table, Stand or Bench Grinder, Welding Rods, Hoods, and other accessories.
2. Metal Supply Equipment—Pipe and Metal Rack, Pipe Bench and Vise, Power Hack Saw.
3. Forging Equipment—Forge and Blower, Anvil with hammer and tongs' rack, Quenching Bath, Forge fuel supply.
4. Garden Tools — Hoes, Spades, and Garden Hose.
5. General Repair Equipment—Work Bench, Tool Racks, Swivel Vise and Wood Vise, Bench Grinder with steel brush, Drill Press and Drill Bit Rack.
6. Wood Working Equipment—Table Saw, Band Saw, and Sander.
7. Battery Equipment—Battery Charger, Battery Tester, Acid and Distilled Water.
8. Air Compressor and Auxiliary Equipment—Lubricating Equipment, Tire Inflating Hose and Gauge.

The welding equipment and compressor are near the traffic door for accessibility to machinery, trucks, tractors and cars and for outdoor paint spraying.

Locate lathes, table saws and work benches near windows for better daytime light.

A portable crane and hoist is a convenient type of lifting equipment. You can build this right in the shop.

An anchor hook flush with the floor near the rear-center can be valuable for snaking in heavy machinery.

Safety

The following is a safety list that should be observed in constructing and maintaining a modern electrified farm shop:

1. Install fire extinguishers in convenient places around the shop.
2. Wear goggles when grinding or welding.
3. Block hoisted machinery before working near it.
4. Keep the floor free from grease, oil and debris.
5. Be sure you are not in contact with water pipes or wet floors while touching electrical outlets and equipment.
6. Open a door or window before running an engine in the shop.

"Electric Mixer Is a Dandy"

Mixing concrete used to be a tractor or gas engine job on the Paul J. Heckman farm, near Wellsville, Kans. It was noisy and a troublesome operation.

The job is done easily and quietly now with a ½ horsepower electric motor. There is a galvanized iron sheet above the motor to protect it from spilled concrete.

"I never was able to talk with my helper while I was mixing concrete with a gas engine," said Heckman. "But this electric mixer is a dandy!"

Heckman laid the concrete floor for his new dairy barn in June. To mix concrete for a 40 x 15 foot floor, 4 inches thick, took him and his neighbor Walter Smith, two and one-half days. It cost him about 1¼c per hour to operate mixer.

—Dean Sims

Damon Howatt as an archery enthusiast.

Archery Turns Into Part-Time Farm Business

By **HERBERT JONAS**

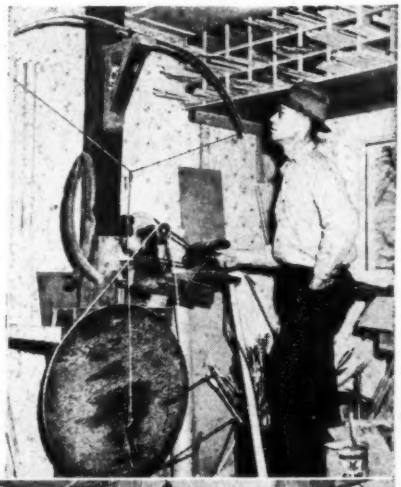
BACK in 1938, Damon Howatt took up archery as a hobby. Mr. Howatt is an orchardist with a farm in the Yakima valley of Washington. Within a few months he was making his own arrows. Then he made a bow in his farm workshop.

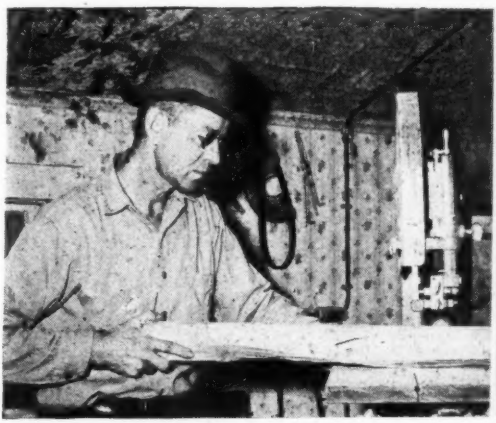
Today, Mr. Howatt conducts a spare-time manufacturing business at his farm home on Route 8, Yakima. He supplies equipment to archery enthusiasts over a wide area. His customers, at first confined to the Yakima valley, have increased to include the entire Pacific Northwest and as far away as the New England states.

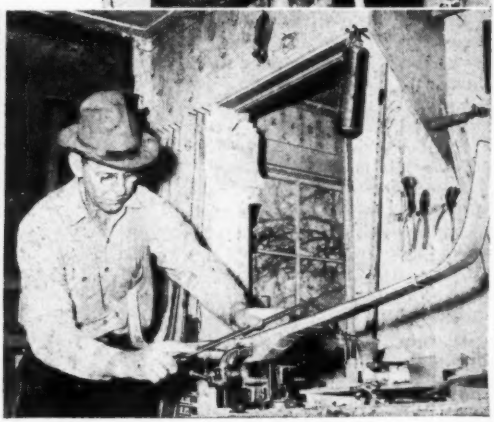
It takes Mr. Howatt only about a half-day to turn out a simple bow designed for target shooting. The heavier hunting bows require about two days' time, spread over a period of two weeks.

The first step in bow making is to rip in half, lengthwise, a 42-inch billet of seasoned yew wood. The two pieces are then joined with a fish-tail splice and case-in glue into a single piece some six and one-half feet long. After a preliminary shaping and sanding, ends are dipped in boiling water until pliable and bent to form the rough bow. The simple bows then require additional sanding, facing and polishing. But hunting bows require special backing of either sinew, rawhide or one of the new nylon products, and the process, along with other requirements, extends over two weeks.

Electric power tools speed the manufacture of arrow stock, but the exacting Mr. Howatt painstakingly hand-finishes and lac-







Lower Left: Ripping the 42 in. billet of seasoned yew with a bandsaw. Each piece makes an end of the bow so both are alike. **Lower Right:** Center splice made and ends bent, bow is now being roughly finished. **Upper Right:** This is the motor-driven flexing machine to test bows before they are ready to ship.

quers each individual arrow. Arrows come in a variety of weights and types. A carefully calibrated machine accurately sorts arrows for different flight requirements.

The bow and arrow business at this Yakima valley farm is important enough to warrant its own building and an imposing array of electric power tools. In addition to standard tools such as an electric band saw and a sanding machine, Mr. Howatt has designed and built his own specialized equipment, adapted to bow making. A quarter-horsepower motor, operating a counterbalanced wheel, gives a final trial run of 2000 flexes to every bow that leaves the shop.

A Home Freezer Record

Where is it? How Much is Left? How Old is it?

By **A. V. KREWATCH**
University of Maryland

I have developed a simple frozen food inventory that is easy to use. The inventory sheet shows:

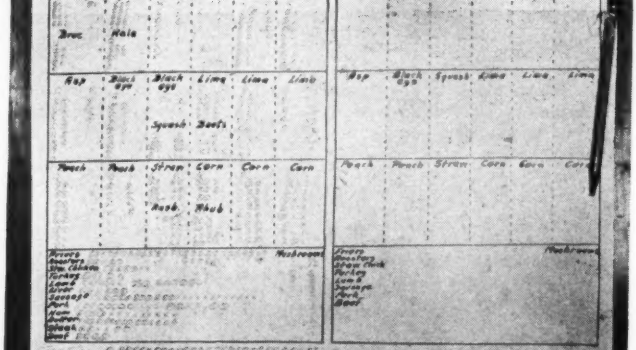
Which shelf
Location on the shelf
Number of packages put in
Number of packages taken out
Number of packages remaining

This inventory can be made up on one sheet or on two sheets of paper. For example, one marked 1947 and the other marked 1948. The inventory shown is for an upright freezer with four shelves. Each of the three top shelves takes 6 double stacks of cartons. Snap beans, for instance, go on the top shelf to the right; then two stacks of peas. Leafy products come next such as greens, spinach, broccoli and kale. On the second shelf from the top, asparagus goes to the left, black-eyed peas next. The next two stacks show lima beans, squash and beets.

You will notice that the 1947 record is kept until all 1947 food is checked out. At the same time 1948 is under way.

It is recommended that a person form the habit of placing the same products in the same locations season after season. This saves hunting. You know right where to reach. It saves excessive opening of the door and makes it easy for the children to locate what mother sends them for. This same idea can be applied to a chest-type freezer by making a floor plan.

You will notice that you place an X for the product put into the freezer and you circle the X when you take it out. The record keeping is quick and is not a nuisance. It serves as a good guide for next year's freezing.



Eight states now tour their highways with magnetic sweepers to pick up nails and reduce the number of flat tires. The states are Arkansas, Kansas, Minnesota, Mississippi, Missouri, Nebraska, North Dakota and Oklahoma. An average of six pounds of tire-damaging metal is picked up per mile per year.

Scotch Locker Tape Available

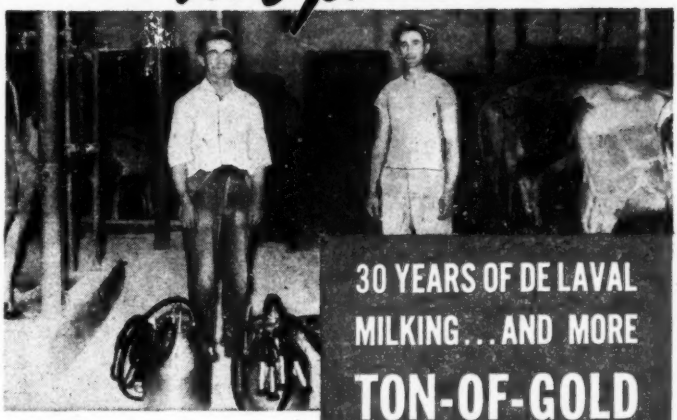
The special Scotch tape which has been used by locker plants for fastening odd shaped packages is now available for home use. Rolls contain 48 ft., ½ inch wide. Sticks to locker papers, films and foils. Holds when frozen.

For the NEW YEAR let's start it with "THE LITHPING LOV-ER'S RESOLUTION."—"Kith and me we may NOT be, Kith and me we've NEVER been, BUT Kith obvioth to thee—I will KITH you IF I KIN!" . . . . HARD TIMES: when HITCH HIKERS will go either way . . . Ever try playing the game of fitting ODD words into SENTENCES? Here are a few we think are HORRIBLE examples: SOVIET: Dinner was ready, SOVIET. CADILLAC: a CADILLAC mean IF you pull its tail. BOLL WEEVIL: After the BOLL WEEVIL all go home. (Bennett Cerf) . . . . JINGLE-JOLLY DEPT.: "SOME guys, WHEN your money's FREE, Shake your hand EFFUSIVELY; WHEN it's GONE you find that THEY DON'T-SHAKE you in ANOTHER way." . . . . DROOP: "Can you STAND on your HEAD?" STOOP: "NOPE, It's TOO high." . . . .

POST-WAR LET-DOWN: Winnin's skirts' . . . . Radio comedian Bob Hawk recently asked a pretty gal contestant to define the word "MATRIMONY." The gal thought a moment and then brought the house down with the reply: "It's one of the UNITED STATES."

. . . . WOMAN'S CROWNING GLORY: a RICH man's SCALP . . . . SCIENTISTS claim that the MODERN girl blushes as easily as the OLD-FASHIONED girl. but that she blushes INWARDLY instead of OUTWARDLY. In OTHER words, the SPIRIT is willing, but the FLUSH is WEAK. (Caw! Caw!) . . . . Drinking a cupacoffee in our favorite beanery a few evenings ago, we overheard the waitress ask a dour looking customer: "What'll you have?" "WHAT'VE you GOT," asked the dyspeptic looking gent, "that'll give me a heartburn IMMEDIATELY instead of at THREE O'CLOCK in the morning?" . . . . SNICKER-SCOOP of the MONTH: The honeymoon couple had JUST registered in their hotel and the bellhop had just delivered the baggage and left. The cute little bride had OH-H-ed and AH-H-H-ed about EVERYTHING but when she saw the twin beds her face fell. "Whatever is wrong, honey," asked the bridegroom anxiously. "Nothing MUCH," pouted the bride, "but I'd JUST hoped we MIGHT get a room ALL to ourselves!" . . . . Your pun-peddler—DUFFY.

PROOF —not promises!



30 YEARS OF DE LAVAL MILKING... AND MORE TON-OF-GOLD COWS THAN ANY OTHER HERD IN THE WORLD!

Famous Brigham Farm, St. Albans, Vt., has used the De Laval Milker on its great herd of home-bred Jerseys for 30 years. Every cow in this herd has been milked twice a day throughout her entire lifetime with the De Laval. As evidence of udder health and proper milking during this long-time program we offer the following:

• 10-year herd average is 513 lbs. butterfat on more than 100 cows.

• For seven successive years herd average on more than 100 cows exceeded 500 lbs. (See table)

Year	Cows	Milk	Test	Fat
1947	111	9,942	5.3	530
1946	127	10,529	5.29	543
1945	143	10,058	5.24	527
1944	141	10,171	5.11	520
1943	127	10,053	5.26	529
1942	112	10,116	5.11	517
1941	124	9,739	5.26	512

(Each yearly average is a record for the Jersey breed)

• 81 Brigham Farm bred, owned and developed cows have Ton-of-Gold Award. (More than any other herd in the world.)

Cesaire Lacoste, herdsman, says: "With the De Laval Magnetic Speedway Milker we milk 57 cows in 57 minutes with 2 men operating four units. On other farms I have used 3 other makes of milkers. De Laval Milkers are best in every respect and always milk cleanly and uniformly."

When are *you* going to change to the new De Laval Magnetic Speedway Milker—for healthier udders... maximum production per cow... greatest profits?

De Laval
THE DE LAVAL SEPARATOR CO.
165 Broadway, New York 6
427 Randolph St., Chicago 6
61 Beale St., San Francisco 5

The De Laval Separator Company, Dept. 10-P
165 Broadway, New York 6, N. Y.
Please send me printed matter on:
☐ De Laval Milkers ☐ De Laval Water Heaters
☐ De Laval Separators ☐ De Laval Milking Truck
☐ De Laval Freezers ☐ De Laval Can Hoist
Name_____
Town_____ RFD_____ State_____

Movable Motor

THE illustration shows a ½ horsepower chore motor on the farm of Jack Retheford, Momence, Illinois. There are various ways of holding a motor in place for driving a machine. Mr. Retheford uses hinges. The hinge is a wide one. The bolt is driven out and half of the hinge is fastened to the wood motor base. The other half is fastened to the base of the machine where it is to be used. He has half hinges scattered around on machines wherever the motor is to be used. The weight of the motor serves to keep the belt tight.

There are several things of interest about this picture. Look at the motor first. It has a flat pulley on one end of the shaft. When the motor is started, the bottom strand of the belt on the corn sheller will be the tight side. That makes the belt hug the pulley better. On the opposite end of the double end motor shaft are V pulleys of different sizes.

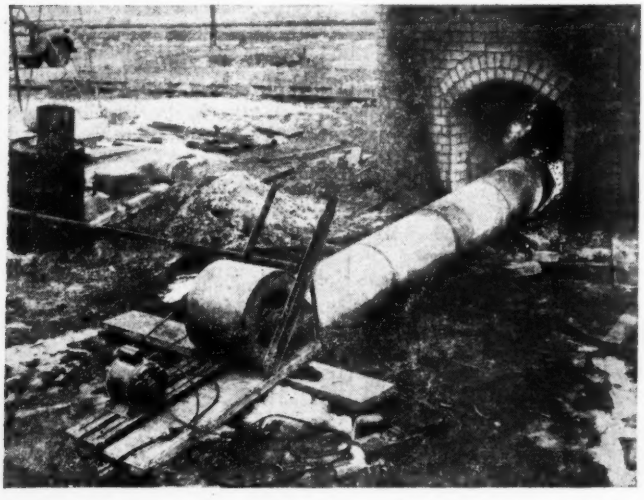
When the motor is to be used on the sheller or on the grinder on the bench, the base is put in place and a spike inserted in the hinge coupling. On some jobs the round stick attached to the base may just be placed between two guide strips to hold the motor in place instead of using the hinge.

It is worth noting also that the wrenches and other tools have a place and are in place. That helps a lot when you want one in a hurry.

GEO. R. HARRISON

Electric Cob Burner

The picture shows a small centrifugal blower driven by a ⅓ hp motor to supply forced air for burning cobs at an Indiana elevator. Ear corn was brought in and shelled. The cob fire in the burner would be just about put out whenever there was a fresh piling on of cobs. The blower solved the difficulty. No matter how many cobs were dumped on, the cobs continued to burn in a lively fashion.



Possibly you do not have any cobs to burn that you cannot use in the furnace or range. The same principle will apply, however, to the burning of any refuse. On a smaller scale, the same type of equipment is applied to a heating furnace that has a poor draft. If you do burn cobs or waste wood, the heat from the fire might be used to dry more ear corn or grain.

GEO. R. HARRISON

"The greater the obstacle, the more glory in overcoming it."—*Moliere.*

"If you acquire enough good habits, the old ones vanish just as good grass crowds out the weeds."—*Clarence T. Hubbard.*

Loading Cans of Milk

Mr. Wm. H. Gallaher, Murrysville, Pa., has written us how he handles his cans of milk from the cooling tank onto the truck. It is not an electrical method, but it is a lift saver to go with a milk cooler.

First, a carrier track or rod is run on the ceiling from just above the milk cooler, through a door and out over the truck. If possible the track or rod should slope downward slightly toward the truck. If a rod is used, a snatch-block is mounted on it so the sheave rides the rod. Two short chains or ropes with hooks to go over the can handles are attached to the carrier or block. That makes the conveyor.

To lift the cans up to the conveyor, a stationary block is mounted above the edge of the tank and higher than the track. A rope is passed over this block. To one end is attached a weight just less than the weight of the can and resting on the floor. The other end is branched and supplied with hooks that go over the can handles. The can is easily lifted and transferred to the carrier hooks. A push puts the can out over the truck bed.

Steve E. Jacobson of Blanchardville, Wis. uses a track and double wheeled carrier in a similar manner. Instead of using a counterbalance for lifting, he uses a block and tackle or fence stretcher attached to the carrier. At the lower end of the tackle he has four hooks so he can lift two cans. The cans are pushed onto the load without transferring. They are lowered with the tackle. The track is mortised-in above the door so there is no opening to cover in cold weather.

In Hot Water

It is estimated that there are 25 million homes in the US with no means to produce controlled temperature hot water. The kitchen stove provides more than 35 per cent of the hot water; furnace coils and manual heaters another 35 per cent. All other methods, including automatic water heaters make up less than 30 per cent.

1 OUT OF EVERY 5 U.S. DAIRYMEN LOSING MONEY

Due to UNDERSIZED COOLERS

INSUFFICIENT MILK COOLING CAPACITY means either rejections, or extra hours of labor—or both.

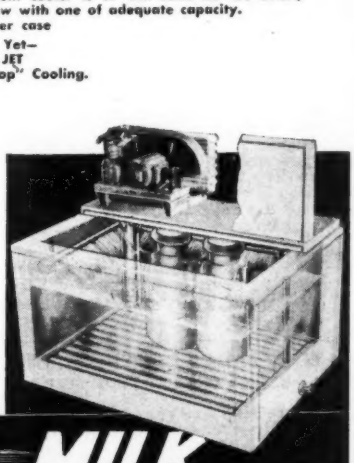
Yet a new, nationwide survey of representative dairies shows that more than one out of every five has insufficient capacity—nearly one out of five, because the coolers they purchased were inadequate when purchased.

COOLER CAPACITY SURVEY
SUGGESTED BY ARCTIC JET
Conducted by Electricity on the Farm

Section	Too Small Today	Too Small When Bought
New England	48%	33%
Middle Atlantic	27%	21%
East North Central	17%	15%
South Atlantic	18%	18%
West North Central	33%	21%
West South Central	4%	4%
Mountain	40%	40%
Pacific	11%	11%
East South Central	13%	13%
United States	22%	19%

WHAT ARE THE ANSWERS?

1. Be sure to purchase a cooler large enough for present and anticipated needs.
2. If your present cooler is or will soon be too small, replace it now with one of adequate capacity. AND—in either case
3. Buy the Best Yet— BUY ARCTIC JET With "Can-Top" Cooling.

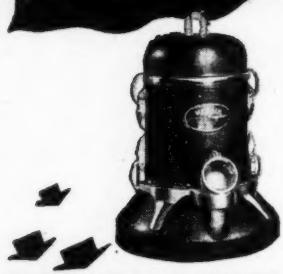


WRITE DEPT. A FOR LITERATURE

arctic jet MILK COOLER

SARGENT-ROUNDY CORP., RANDOLPH, VERMONT

Every Farm Needs This New Appliance

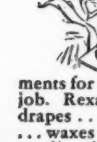


FOR THE FARM

A new low-cost appliance, called Rexair, does an amazing number of farm jobs . . . cleans and paints farm equipment . . . sprays insecticides . . . cleans and disinfects buildings. Rexair cleans livestock of lice and other vermin . . . vaporizes medicine to relieve animal diseases . . . paints buildings.

FOR THE HOME

Inside your home Rexair cleans the air you breathe! Removes stale, dust-laden air and fills the rooms with pure, washed air. Rexair has attachments for every other kind of cleaning job. Rexair cleans rugs, furniture, drapes . . . scrubs, rinses, dries floors . . . waxes and mothproofs. Rexair has no dirty bag to empty. Rexair uses a bowl of water to trap dirt. You simply flush the water and dirt away—out of your house forever.



FREE BOOK! An illustrated book shows all of Rexair's farm and home uses. Send for your free copy today!

REXAIR DIVISION, MARTIN-PARRY CORP.
BOX 964, TOLEDO 1, OHIO—DEPT. U-1

Please send free copy of your book, "Rexair—the Amazing New Appliance."

Name_____

Route No._____ Box_____

Post Office_____ State_____

Electric Ice Fighters

Our cover picture is familiar to most of you as the all-year-round, electrically heated stock waterer. It has a valve like an indoor drinking cup. Under the cup are electric heating cables to keep the cup, valve and pipes from freezing. Set the unit high for cows and horses, lower for sheep and still lower for hogs. The same unit works for all.

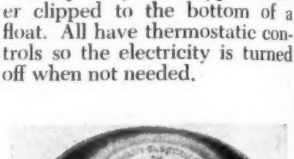
Three companies make built-in floating ice preventers similar to this one. They keep the ice off for drinking.

R. E. Bossard, a Cropseyville, N. Y., farmer had this to say on the radio about these warmers. "When we decided to build a heifer barn 140 ft. long, containing seven pens, we put one in each pen. We laid the underground electric wires in the same trench with the pipe.

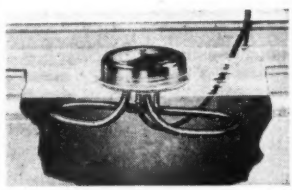
"The cattle took readily to the waterers and they were easy to clean. The usual mud hole around the tank was also eliminated.

"In extremely cold weather we would visit our heifer shed secretly expecting a flood and a few frozen waterers, but amazingly enough the darned things worked. It's a pleasure to see the animals drink their fill on a cold day and not stand around and shiver afterwards."

Ice preventers or stock tank de-icers have become popular. They are the units with just enough electric heat to keep a drinking hole open for the stock without warming the water in the tank. At least six companies are now making them. Some have the heating element attached to the inside of the bottom part of the float. Others have a float with the heating elements extending out below. One uses a poultry water type warmer clipped to the bottom of a float. All have thermostatic controls so the electricity is turned off when not needed.



These are two of the three ice preventer types with heating elements extending down below the floats. These two have heaters of 950 and 1000 watts.



Hard Surface Welding Powder

Instead of using a rod electrode for hard surfacing thin edges of earthworking tools, you can now use a powder. The powder is spread thinly on the cleaned metal, either dry or as a paste. The resulting surface can be as thin as a knife blade. May be used with either AC or DC welders. Adaptable to either single carbon arc or twin carbon arc torch. Made by Lincoln Electric Co., Cleveland, O.

—I'm proud I am a farmer!—

For Democracy's Good

With the World going askew in so many places, it behooves us to think straight to keep our freedoms in this country. Here is a statement along that line made by W. H. Daughtrey, Assoc Director of Extension in Virginia. It merits thought and action.

"The Extension Service recognizes that an understanding by rural and urban people of their interdependence is an essential for the general welfare. Group pressures for special advantages at the expense of other segments of our society result in ultimate damage to the whole. In the future, the extension service must place more emphasis on its teachings in this important field. It is a difficult field, but cannot be side-stepped if democracy is to survive."

How Minnesota Farms Get Good Wiring

Minnesota has done one of the best jobs in the country in getting good wiring on farms. For years they have had an organization working on it. They have their own little handbook on "Minnesota Farmstead Wiring Regulations".

Recently Mr. A. H. Kessler, Executive Secretary, North Central Electrical Industries, gave a talk before the International Association of Electrical Leagues. Here is a paragraph from it:

"In Minnesota, farm wiring may be done only under the supervision of a licensed and bonded Master Electrician. He is required to submit an affidavit upon completion of the work and attest that the installation meets all code requirements. Service will not be supplied by the utility until it has this affidavit in its possession. New installations are reported to inspectors working under the direction of the State Board of Electricity who make an official inspection. Our Minnesota farmers, therefore, have reasonable assurance that new electrical installations have been made with due regard to National Electrical Code and Minnesota Farmstead Wiring requirements."

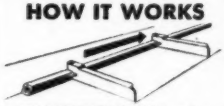
There are more than 200 different kinds and sizes of electric lamps now used in homes.

"Most of the shadows of this life are caused by standing in our own sunshine."—*Emerson.*

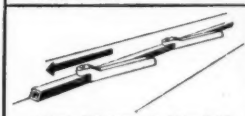
NEW! Jamesway
REG. U.S. PAT. OFF.
BARN CLEANER

Cleans 40-cow barn in 10 minutes

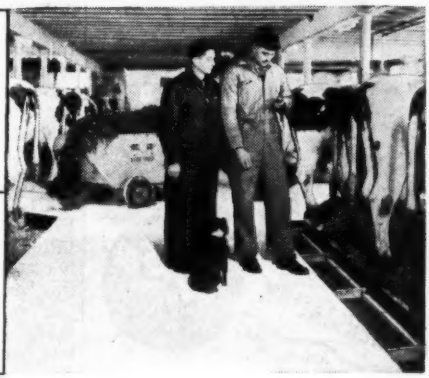
HOW IT WORKS



PULL STROKE. Paddles swing out from steel tube and pull manure 8 feet—straight toward loader.



PUSH STROKE. Paddles fold against tube, slide past manure. Shuttle action quickly cleans barn.



Here it is! An entirely *new* kind of barn cleaner that licks the toughest, hardest, most backbreaking chore on the farm. It cleans 14 feet of gutter per minute. Cleans the average barn in 5 to 10 minutes. Saves you up to 2 hours every day!

This new cleaner uses a new "push-pull" action, developed and tested by Jamesway. A square steel tube slides back and forth, hugging the inside corner of the gutter. Paddles swing out on the pull stroke to catch the manure, then fold and slide back past the manure on the recovery stroke. This gives you many advantages!

You don't have to build *cross* gutters for this Jamesway barn cleaner! You don't have to bother with gutter chains and sprockets. This cleaner fits *any* width of gutter, works in a single gutter, or in gutters of *unequal* lengths. What's more, the motor and drive assembly are completely shielded, outdoors and out of the way.

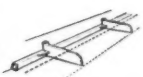
It's *easy* to install a Jamesway barn cleaner. Ask your dealer about it today. You'll be surprised how little it costs. For complete information, mail coupon today!

Jamesway
REG. U.S. PAT. OFF.

FT. ATKINSON, WIS.
ELMIRA, N. Y. • OAKLAND, CALIF.

FREE LITERATURE

To James Mfg. Co., Dept. EF-149, Ft. Atkinson, Wis. Please send me complete information on the Jamesway equipment which I have checked.



☐ Jamesway Barn Cleaner. Pull-Push. It's better.

☐ Jamesway Electric Ventilation. Keeps barn drier.

☐ New Automatic Pressure Waterer Electrically heated.

☐ Jamesway Electric Chick Brooder. It "Mothers them all"

NAME.....

ADDRESS.....

STATE.....

THIS NEW THERMALINK ELEMENT SAVED MY FAMILY OVER HALF THE USUAL COST OF AN AUTOMATIC
ELECTRIC WATER HEATING SYSTEM
AUTOMATIC ELECTRIC
THERMALINK
WATER HEATING ELEMENT
$17.50
Slightly higher in some areas

Underwriters' Laboratory Approved

Your family, too, can enjoy the convenience of a modern automatic water heating system (in spite of a limited budget) now that the new THERMALINK Element is available at so low a cost. This remarkable electric water heating device can be easily screwed into the opening on the side of any standard thirty-gallon (or larger) domestic water tank or range boiler. If you already have a range boiler in your home, it can be converted into a modern water heating system with a THERMALINK Element. For an abundant supply of hot water the year 'round, without the tiresome task of building fires or tending a bucket-a-day, install a completely automatic THERMALINK Element.

SIMPLY SCREWS INTO DOMESTIC WATER TANK OR RANGE BOILER

ELECTRO-THERM INC.
8024 GEORGIA AVE., SILVER SPRING, MD.

MAIL THIS COUPON TODAY

ELECTRO-THERM INC. 333
8024 Georgia Ave., Silver Spring, Md.
Please send me, without obligation, additional information and the name of the THERMALINK dealer nearest me.

NAME.....

ADDRESS.....

.....

4-H Champs Named

Once again the 4-H Club Congress in Chicago has ended. That is a great occasion for the young people privileged to attend. It is the culmination of a year's study and activity in 4-H projects. Besides the 4-H sessions, special banquets and the International Livestock Show, awards are made to the National winners in many projects. The combination of projects represents a pretty complete cross section of agriculture and home economics.

ELECTRICITY ON THE FARM Magazine is naturally a little partial to the Club members who "won their spurs" in the "4-H Better Methods Electric" program. It is known generally as the Westinghouse contest, because Westinghouse sponsors it and provides the awards.

Thirty-eight state winners were given free trips to the Club Congress and International in Chicago. To win one of these trips each had to win in his or her own county and then be "tops" of all the counties in his state. Along the way, much was learned and taught to others about the helpful use of electricity on farms. We congratulate those 38 state winners and want you to know who they are. The names of the six national winners are in bold faced type.

State Winners 4-H Electric Contest

Robert Norris, Alabama
Betty Jo Frauenfelder, Arizona
Keith Smith, Arkansas
Marjorie Powers, Colorado
Hazel Lanelle Brock, Georgia
Delbert Rumpel, Idaho
Jimmie Gahm, Illinois
Lester Craig, Indiana
Ralph E. Bond, Iowa
Sam Hundley, Kansas
Gene Moore, Louisiana
Lloyd Allen Bolstridge, Maine
James Walter Pfefferkorn, Maryland
Lucia A. Pierce, Massachusetts
Meddy Paciorek, Michigan
Roscoe S. Strawn, Minnesota
Sadie Mae Patton, Mississippi
Jimmie Sutherland, Missouri
Louise M. Hanson, Montana
Danny Runty, Nebraska
Florence L. Shelley, New Hampshire
(Miss) Tommy Dale Mullins, New Mexico
Robert Frederick Scheg, New York
Paul V. Breedlove, North Carolina
Bernard Baumler, North Dakota
Rosemary Riepenhoff, Ohio
James Michael Bellinghausen, Oklahoma
Nina Jean Mendenhall, Oregon
Demetrios Haseotes, Rhode Island
Grace Marie Shepard, South Carolina
Austin Williams, South Dakota
Frances Bevis, Tennessee
Wayne White, Texas
Joan Patten, Utah
Evelyn Massie, Virginia
Mardelle Hopkins, West Virginia
Robert E. Pitts, Wisconsin
Harry Michael, Wyoming

Twenty-three of the 38 state winners were boys. Four of the six national winners were girls. The national winners each received $200 scholarships in addition to their trip to Chicago. L. E. Osborne, vice president of Westinghouse made the presentations.

Heat From A Fan

Research engineers of the General Electric Company have been doing some investigating. They have found that in the average heated room in winter time the temperature is 10° warmer at the ceiling than at the floor. Furthermore that by using a regular table model electric fan one can bring the heat down so there is only a 2° difference. At table level the room temperature was 4° to 6° higher. That's the space we live in.

Best results were obtained by placing the fan on the floor at one side of the heat source. Point it up about 30° midway of an adjacent wall. This will keep the air moving around the room. You can check it with smoke.

To Keep Pipes From Freezing

At the University of Wisconsin Electric Research Farm a water pipe was placed in a tile line at a depth of 4′ in the soil. It was hoped the tile would prevent the pipe from freezing, but it did not. Having the drain tile open at both ends did enable them to thaw the pipe by blowing hot air through, or with hot water. A heating tape or cable would, of course, have provided the necessary heat.

Styles in Pig Brooders

IT has now been more than twenty years since our first article on electric heat for early pigs was published. (July 1928). During that period a lot of farmers have made very favorable reports to us on their experiences with pig brooders. Several agricultural experiment stations have conducted investigations and given electric pig brooders high ratings. The Purdue Station found that electric heat for early litters resulted in 30 per cent more pork at weaning time. Lately, farmers are finding new methods of using heat in raising pigs. One is described in this issue.

Since farrowing time is approaching, a review of different systems farmers are using may be helpful. The use of electric heat on pigs started because of the heavy losses in winter litters. These early litters were much wanted in order to get them on the early fall market when prices were high. The losses were due primarily to chilling and crushing of the pigs. Heat was used first to dry the pigs and then to keep them warm. This lasted for from two days to two weeks.

At first, bathroom heaters were used. They were just hung in the farrowing pen and pointed down at the floor.

Corner Brooders

Next, in order to keep the sow from crushing the pigs, a hover was built across one corner. These consist essentially of guard rails to keep out the sow and a flat triangular roof at a height of 16″ to 24″. A circular hole sawed in the top permits using an ordinary 200 or 300 watt incandescent lamp with reflector as a heater. Because of the enclosure, a lower wattage than in a bathroom heater could be used.

After this came heat lamps. They are very similar to ordinary lamps but last longer and produce more heat and less light. The reflector type heat lamp, now very common, has its own built-in reflector. It is very generally used in pig brooders. It is made in sizes of 75, 250, 375 and 500 watts.

Last year Dan Rumler reported on a further use of heat lamps to avoid runts. He took each pig from the sow as soon as it was born. The pigs were placed in a clean tub on straw. Burlap was stretched across the top of the tub and an R-40, 250 w lamp hung above it. When all the pigs were born, they were taken to the mother and each got a chance at that first colostrum milk. Each farrowing pen was also equipped with a corner brooder. Dan raised 34 litters without a runt.

There is a possibility of using a board for temporarily closing off the corner hover and using it in place of the tub Mr. Rumler used.

In this issue is a story about Royal Holt's creep and feed pen supplied with heat.

Some breeders prefer to just

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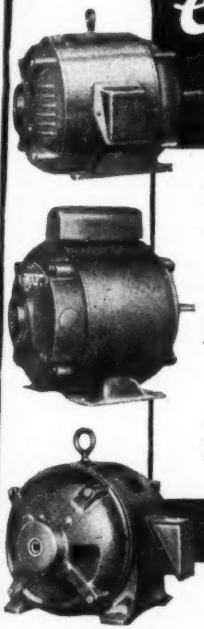

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Century Squirrel Cage induction three phase motor

Century motor driven equipment such as feed grinders, shellers, grain fans, can often be operated by one man instead of two or three men necessary by hand methods. Water pumping can be made completely automatic. Century motor powered workshop equipment makes sharpening and repair jobs easier and they can be done in less time.

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hang a heat lamp in the center of the pen high enough so the sow cannot reach it. They say the warmth is good for the sow's feverish udder before the pigs come. They also say that having the heat in the center of the pen keeps the pigs and sow away from the wall and few pigs are crushed.

That's the story. You can probably find all of these different systems in use, and the users liking them. The system for any farmer to use will depend upon his buildings, climate, number of sows and labor available. It looks as if this was going to be a year when everyone will want to save every pig.

For safety, keep heaters and lamps away from straw and other litter, and lamp cords away from sow and pigs. Heavy duty rubber covered cord is best for hog houses. And remember that if you have a long run of small wire you may not get full heat from heaters.

Milkhouse Heater Voltage

"We are concentrating our efforts on a 1500 watt *230 volt* single phase heater." This is from a manufacturer who has had many sales and very satisfactory experience with electric milkhouse heaters.

The reasons he gives for this selection are, first, 2 watts of electric heat per cu ft of house will, in most cases, prove satisfactory. Second, 230 volt heaters have in all cases proven satisfactory, whereas a number of 115 volt heaters gave a great deal of trouble.

Here are the causes of the trouble:

(a) The wiring system was already overloaded with milking machines, water heaters, and other electric equipment.

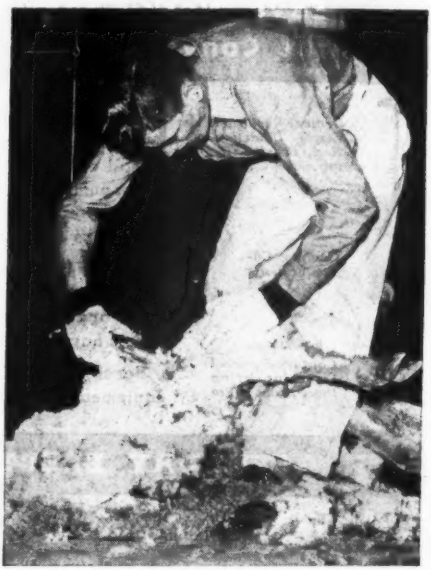
(b) The long run from the power line to the milkhouse caused considerable voltage drop and the heater in many cases was operating at only 50% to 75% of its capacity.

What applies to electric heaters will apply also to other farm equipment using 1,000 watts or more. In these cases, it is desirable to use 230 volt current, or put in heavier wires.

4-H Champion Shears Way to Title

Maurice McClure, 20, of Walton, Kansas, won top honors in the National 4-H Shearing Contest at the International Livestock Exposition, Chicago Union Stockyards, December 3. Maurice won a $200 college scholarship donated by Sunbeam Corporation, sponsors of the contest. He nosed out 25 4-H champions by piling up more points for condition of fleece, shorn sheep, and speed.

Shearing 3 sheep in the average time of 6 minutes and 44 seconds, Maurice had a total score of 88.20, just nosing out Myron N. Lyon, 21, of Sheridan, Indiana. Lyon's point total was 87.81. Two points behind him was Rex Chittick, 19, of Rossville, Indiana, score of 85.96.



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Ditchman's

Plants are green. That means that plants reflect green light. They absorb (use) light from the red end of the spectrum. Plant growth is often stimulated by a rather small amount of light, from incandescent lamps. Violet, or ultraviolet does not promote elongation (growth).

Be careful in using heat (infrared) lamps on sheep with heavy wool. Wool is an insulator and does not let the heat escape. The infrared rays will penetrate the wool and may overheat the skin. Example: A pad of wool felt 2 inches thick was irradiated with infrared. The interior of the pad was charred but the surface was not even scorched.

If you want to count stock in the field or pasture at night, take a PAR 38 spot light up in the haymow door or some high place. You can spot animals in the fields easily. Or you can use the new sealed-beam tractor head lamp with a storage battery for spotting.

Joe P. Ditchman, G.E. Lamp Co.

Lye and strong soaps hinder the bacterial action in septic tanks. Occasional pouring of a mixture of yeast and buttermilk down the drain will help. It stimulates bacterial action and may postpone cleaning.

Electricity is now supplied to 94 per cent of all dwellings in the US including 65 per cent of all farm homes.

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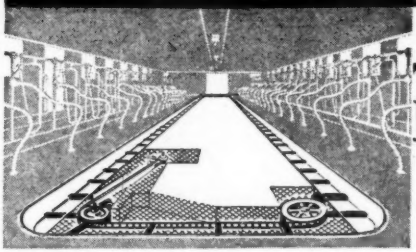
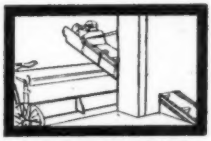


SAVE up to 3 Hours or More of Time and Toil Every Day with the

Eagle Automatic Electric Barn Cleaner



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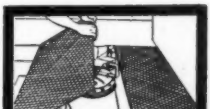
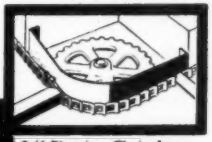
Strong angle iron scrapers or flights of gutter width move litter to discharge pit where it is carried out of the barn by specially designed, leak-proof elevator and dumped automatically onto spreader. Cleans barn in a few minutes. Driving mechanism fully enclosed and recessed below floor Easily installed in any barn — new or old. If you have electric current, you can begin now to enjoy the time and drudgery-saving advantages and added profits of an Eagle Electric Barn Cleaner — write today for folder EF-149.



Recessed, Safe, Fully Enclosed and Protected Driving Mechanism.



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Electrical Housekeeping

Edited by NAN SHAW
329 Memorial Union, Ames, Iowa

We're Here to Stay

By HELENE DILGER
County Extension Home Economist,
Davenport, Iowa

The Alphonse Pucks live on a 160-acre farm near Davenport, Iowa. "We had about decided to quit farming" said Mr. Puck. "There was just too much to do. Life wasn't much fun for any of the family."

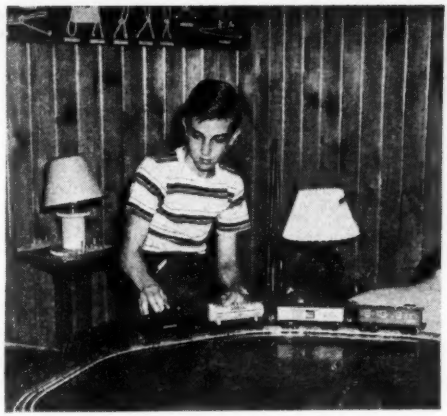
The family liked farm life but not the way they had to live it. Both Mr. and Mrs. Puck thought that it was a good place to raise their two boys, Lawrence and Vernon, now 17 and 14. So they began to think of all the ways that they could make living on the farm easier.

They first remodeled their 77-year-old house and put electricity to work. They liked the arrangement of the old house, so decided to work out their plans leaving the walls much as they were. It took two years begging help of carpenters, masons, plumbers, and plasters to get the remodeling completed.

To speed the work along, Lawrence took out all of the dirt for the basement with a jeep. Then Mr. Puck and Lawrence did all of the basement work themselves. Vernon, the youngest son was ill at the time with a leg injury, so he watched and cheered from the side lines. The men all have a keen appreciation for the basement. They made it with a high ceiling, tight and free of dampness. Floor drains make it possible to hose it down now for frequent cleaning.

Above: The Puck's new kitchen. It was a large room like many old kitchens. Those round ended cabinets have been used to make peninsulas or to divide the kitchen working space from the rest of the room. Note the double sink; the electric clock directly above it. One "peninsula" makes an excellent serving table right next to the range. The remainder of the room is used as a dining room. Behind the telephone is a storage closet for ironing board, electric iron, vacuum cleaner. A step-saving arrangement.

Right: Here's a story. It is the basement the Puck family built with their own labor. From left to right is the shower, toilet, wash basin for the men, water softener with salt regenerating tank and the electric water heater. Note that copper tubing with soldered joints is used.



The play and game room with Boy Scout knots, guns and an electric train in evidence, is back of the kitchen.

A jet pump, for the electric pressure water system was installed. This supplies water for the house. They made for themselves a wash-up center in the basement with sink, enclosed water closet and shower. They hang their outdoor work clothes in the basement, too.

A Good Laundry

For Mrs. Puck they worked out a fine laundry set-up. A laundry chute brings soiled clothes down to the sorting table. The washer and rinse tubs can be filled with short lengths of garden hose connected to faucets. These faucets are up from the floor about 42 inches.

The used water is emptied down a floor drain. For stormy days there are strong clothes lines for hanging the clothes just a few steps away from the washer. All of this has saved Mrs. Puck much lifting and carrying on laundry days.

They put in a water softener, too, right when all the plumbing and fixtures were being installed. It takes Mr. Puck about 30 minutes to back wash the Zeolite in the softener tank and rinse the brine tank and put it back in action. He does it himself about every 6 weeks. He thinks the best time to do it is just before Mrs. Puck does the family laundry. Having soft water makes a lot of difference in the washing jobs.

Divided Kitchen Saves Labor

Peninsula counters now divide the big old kitchen into a good size dining room and a U shape step-saving kitchen. It was because of careful paper planning that the kitchen now offers plenty of counter and storage space for farm cooking. They even found a place for a much needed cleaning closet.

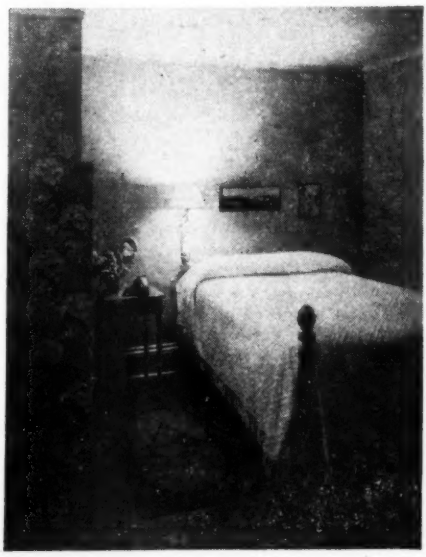
The new kitchen is a real convenience and helps cut Mrs. Puck's work in half. She says "I wouldn't want to wake up and find myself back in my old kitchen. Look at that electric range! It will do everything but eat your food for you." Here she can put all the appliances to work by merely turning a switch or plugging them into convenient outlets. The double basin stainless steel sink requires little cleaning. And there's always plenty of good hot water from the electric water heater directly below in the basement.

Breakfast is a pleasant meal now for it's always comfortable. No more waiting for the house to get warm on winter mornings. The automatic oil burning furnace makes quite a difference. Mr. Puck used to have to empty three pans of ashes a day. "It's well worth the difference and also saves chopping three baskets of wood every day" he says. In fact he likes the automatic furnace more than anything else about the home.

Recreation is important for this family. They like to work together, and play together. Now that they're no longer all tired out, they find more time to be together. A recreation room was a must for the Pucks. It's finished in knotty pine and is back of the kitchen. It is reached through a hall from the back door. The business desk is in this room, too.

The Pucks' farm consumes between 500 and 1000 kilowatt hours of electricity a month, depending upon the season. It's largely because of this electricity that they say, "We're here to stay —now it's fun."

A Pin-Up for Bedroom Reading



The pin-to-wall lamp over the bed will measure up for better living if it is hung on the wall with the bottom of the shade about twenty-six inches above the mattress. It may cramp reading posture a bit if you center the lamp over the bed, so place it on either side, or use one on each side if you wish. Perhaps this will be a happy solution to the bedtime mystery story. Balance pictures near the lamp if you want a peaceful note of repose.—Helen McKinlay

Mrs. Roy Cowden, farm home maker, Casey, Iowa, keeps her space heater handy for rocking chair patching or for stitching on the sewing machine. This is a combination radiant and convection heater.

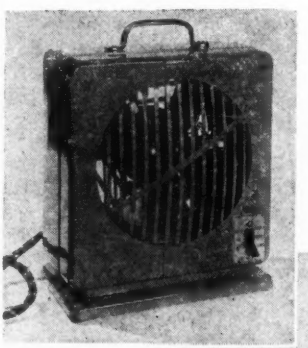
Chill Chasers

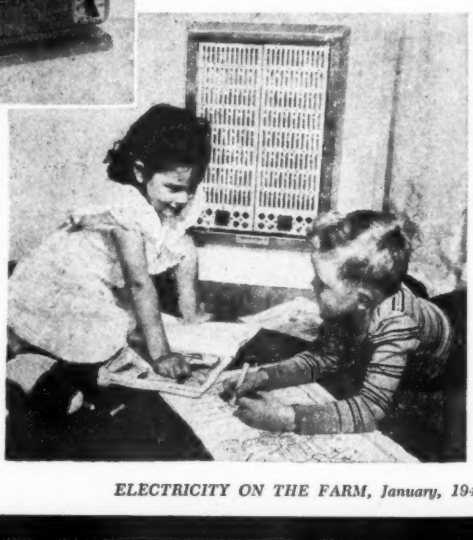
On those especially wintry days when it's hard to keep all parts of the house as warm as toast, an electric space heater is a mighty handy thing to have.

Space heaters help to take the chill off any room that's hard to heat on windy days. They vary in the method by which they operate. Some work on the principle of heat radiation: The heat waves warm solid objects they contact rather than warm the air directly. Others operate on the principle that warm air rises, with air entering at a low level and discharged through an opening in the top. Still other heaters work by means of a fan which draws cool air into the heater and forces it over the heating unit, and the warm air flows out either horizontally or vertically. Then there is the radiator type which may or may not hold water. There are, of course, combinations of all these types. Some of them may even be installed permanently by recessing in the wall.

If you're planning to use a space heater, be sure that you have a special outlet for the cord close to the location of the heater. Use of an extension cord is always a fire hazard. When you use a heater in the bathroom, be sure it can't be touched or turned on and off by anyone in the tub.

When you're buying a heater, look for even heat, flexibility of degrees of heat, and easily operated controls. Get a unit easily serviced by an electric dealer, and free of radio interference. The construction should be





Above: This copper plated reflector bowl heater will beam heat wherever the heater is pointed. It has a porcelain heat resistant socket for the 1000-watt heating element. The protective guard is made of copperplated steel-wire. It is especially designed for quickly warming what it is pointed at. Not so good as a room heater. **Center:** A fan heater stays out all year long. You can use it for winter heating and summer cooling. It also makes a good hair dryer. Fan distributes heat throughout room. Good for bathrooms, etc. **Right:** Some heaters which fit into a recessed wall opening have thermostatic controls to automatically hold selected room temperatures between 60-85° F. These operate on 220-240 volt current the same as electric ranges and water heaters. There are other built-in wall heaters which operate on 115-volt current. They can be installed in old or new houses. They're especially good in bathrooms with limited floor space.

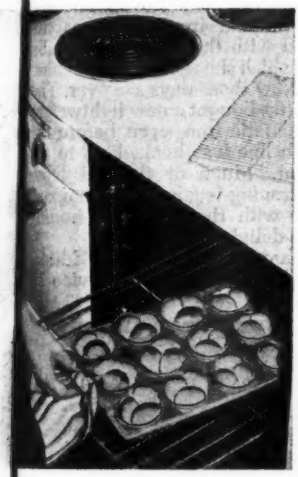
gged, with good balance to event tipping, and the finish st and chip resistant. Finally, ke sure the heater is backed a guarantee from a reliable nufacturer, and carries the l of the Underwriters Labtories.

Space heaters aren't designed do 24-hour-a-day house heatg. They do use lots of elecity. But they may be valuble aids to your regular heating stem, especially in extremely ere weather.

Thiamine in Bread and Rolls

Bread and rolls baked quickly til medium brown hold more iamine—one of the B vitamins lded in enriching flour—than bread and rolls baked slowly til dark brown. Tests at Conell University also showed that lls hold more of this vitamin ring the baking process than ead does, probably because ey can be baked in half the me.

Because thiamine is sensitive heat, nutritionists considered



important to know how well survives in bread during home aking.

The tests indicate that much of the thiamine added in flour richment may be held in yeast read, and that baking time and mperature seem most imporant in saving it. Bread baked minutes at 400° F. held the

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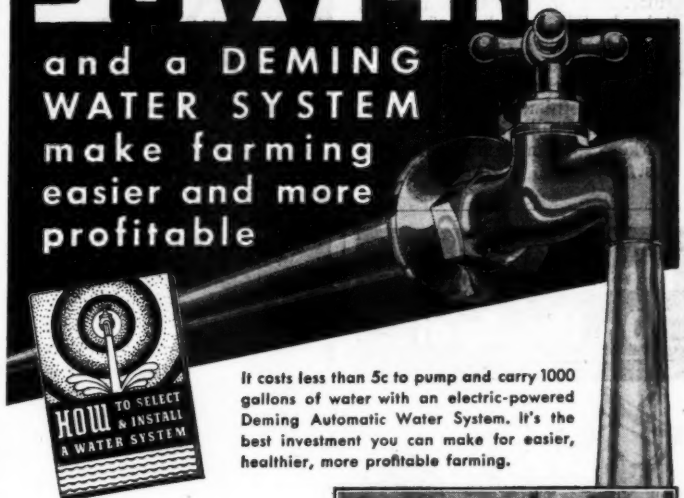

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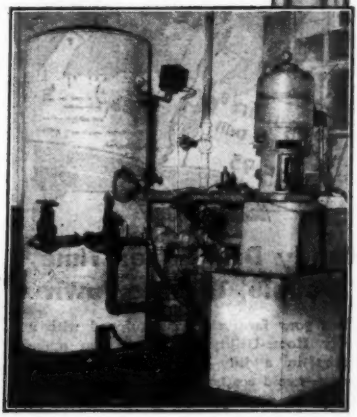

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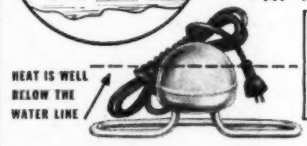

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most thiamine. More was lost in bread baked more slowly.

Whether bread was mixed by the sponge-dough or straight-dough method made only slight difference in the thiamine retained. The number of times the dough was raised also had little effect on the thiamine.

In rolls, those with the least crust held thiamine the best. As breads and rolls were baked to a darker crust, more thiamine was lost.

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When your farm shop is equipped with a husky Home-Utility Drill, you can make repairs in a jiffy—make equipment last longer—avoid costly repair bills! Thousands of farmers use these Drills for everything from drilling out broken machinery bolts to building wagon bodies. They have the right power and speed for all-purpose drilling, wood-boring and Hole Saw cutting. They're built with powerful motors, husky housings, full-size gears and bearings by BLACK & DECKER, famous maker of quality electric tools. And a handy Home-Utility Bench Stand (only $17.45) quickly converts your ½" Drill into a powerful drill press.

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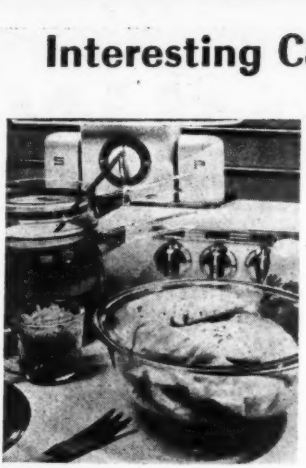
Interesting Cabbage Dishes



CABBAGE is easy to serve often. Cabbage slawed, cabbage panned, cabbage in the soup and cabbage stuffed. These are pointers in the right direction.

Cabbage combined with cereal, makes interesting new dishes. Scalloped cabbage baked with a crisp casserole topping of crushed corn flakes is an excellent supper idea. Creamed cabbage and ham chunks make a delicious dish when served on shredded wheat biscuits that have been brushed with butter and heated in the oven. Quick-cooked shredded cabbage served with fried slices of cooked cereal and bacon makes a satisfying dish.

Cabbage Au Gratin

1 medium cabbage
3 lbs
4 T butter
4 T flour
2 c milk
1 t salt
¼ t pepper
2/3 c grated cheese
½ c buttered bread crumbs

Remove outer leaves of cabbage; cut cabbage head into

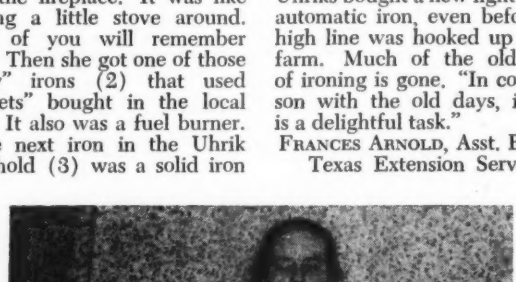
Transition in Ironing

Mrs. Ed. Uhrik who lives on a 121 acre poultry farm near Nelsonville, Texas has a real story on the evolution of ironing on the farm. Mrs. Uhrik started keeping house with an iron (1) which was heated with coals from the fireplace. It was like pushing a little stove around. Some of you will remember them. Then she got one of those "fancy" irons (2) that used "nuggets" bought in the local store. It also was a fuel burner.

The next iron in the Uhrik household (3) was a solid iron with a removable wood handle. It was heated in the fireplace or on the cook stove. The last of the old irons (4) was the kind with the stationary handle on which she used an iron holder.

Now those days are over. The Uhriks bought a new lightweight automatic iron, even before the high line was hooked up to the farm. Much of the old labor of ironing is gone. "In comparison with the old days, ironing is a delightful task."

FRANCES ARNOLD, Asst. Editor,
Texas Extension Service



eighths. Cook in boiling salted water about 10 minutes or until almost tender. Drain and place cabbage sections in a well greased 2½ quart heat resistant bowl.

Melt butter, add flour, making a smooth paste. Add milk gradually, stirring until mixture thickens. Add seasonings and cook about 5 minutes longer. Add grated cheese to the white sauce.

Pour over the cabbage. Top with buttered bread crumbs and bake in a moderate oven (350° F) about 10 to 15 minutes, or until brown. Serve in the glass bowl. This makes a delicious supper dish served with crisp bacon strips and a fruit salad. Serves six.

Cabbage Stands for C

If cabbage salad must be dressed in advance of serving, keep it in the refrigerator. It will have more of its vitamin C than cabbage which stands on the kitchen table at room temperature. As soon as the dressing is added, the cabbage begins to lose this vitamin.

The utensils used in mixing salad affect its vitamin C, according to recent tests at the Maine and Utah Experiment Stations. Cabbage salad mixed in an enameled bowl with a steel kitchen fork lost almost 13 percent more than that mixed in a glass bowl with a silver fork. Such metals as steel, iron and copper are especially destructive to vitamin C.

Fresh raw cabbage is one of the best vegetables for vitamin C. Inner cabbage leaves are vitamin-rich in November, but the outer leaves contain more vitamins in May. But how much of the vitamin you eat by the time cabbage is served in salad depends considerably on how and when it is mixed.

In cooking, cabbage may lose much of its vitamin C.

The Minnesota Experiment Station tested four common cooking methods. The tests showed that cabbage cooked in the steamer and in the pressure saucepan kept the most vitamin C—almost 70 percent for both. Cabbage cooked in a tightly covered pan with very little water kept about 60 percent of its

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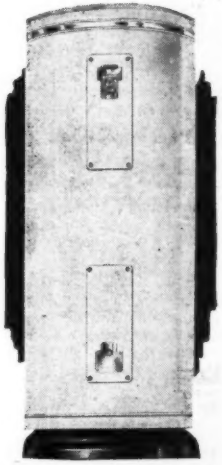

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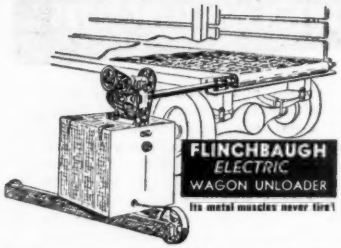

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vitamin C. But the cabbage boiled in an open kettle, with water to cover, kept only 35 per cent, losing about 50 percent in the cooking water. All the cabbage was cooked until just tender. Over-cooking can destroy most of the vitamin C.

Now then, cook it the way you like. Just make sure that you don't throw the vitamins away. Use the water, in which the cabbage was cooked, for a vegetable cocktail or in a soup stock.

Electric Range Center

So much family pleasure and activity revolves around the range. It's especially important to have your range in the best spot in the kitchen, both for the cook and the kitchen kibitzers—big and little.

When you plan your range center, remember that you can save many steps and hours of your life if it's efficient. If it's so well arranged that you thoroughly enjoy cooking, your family will share your satisfaction.

Give Thought to Placing of Range

An electric range with a flexible cord connection needs no venting to a flue. Plan for it to be closest to your most frequently used eating center. If your kitchen is over sized, bring the range out from the wall in a peninsula or island. This will help to make your kitchen eating area more private and will save many steps while cooking.

If at all possible, bank either side of the range with work counter space. At the serving-up side have at least 18 and not more than 24 inches. This, then, will hold the dishes and platters for hot foods. It's also a good spot for the dredging board and canner trays.

Let's call the space to the other side of the range the cooling-counter. Here you can spread out hot cookies, bread, cakes, pies and jars from the canner to cool without being disturbed. It's also a good spot to pour jelly into glasses, or to serve up individual hot plates for parties. This counter space should be at least 2 feet and preferably 4 feet long.

Allow for Ample Storage Space

Above and below these counter tops plan storage for the foods and tools you use at the range. Each range center list will vary because of our families' food likes and our choice of kitchen tools. If it will help you to get started, here is the list of suggestions Mrs. Raymond Sayre of Ackworth, Iowa, used in planning her range center.

Elec. appliances	Pressure saucepan
Dutch oven	Frying pans
Cake griddle	Roaster
Deep fat fryer	Saucepans with covers
Tongs	Flour and seasonings
Hot pads	used at range
Cooling racks	Dripping jar
Double boiler	Potato masher
Serving dishes	Forks
Platters	Turners
Cooking thermometer	Stirring spoons
Tea pot	Ladle
Cereals, beverages	Funnel
Small chopping board	Measuring cups and spoons
Uncooked cereals	Towel drying rack
Canned vegetables	

With the list in hand it is so much easier to plan ahead for storage so that everything is at your finger tip and nothing is stacked up. Such storage calls for pull out shelves, file dividers, adjustable shelves and half shelves.

Place a wall cabinet over a range only if you have an exhaust fan and must have extra seasonal storage space, then it is best to have the first shelf at least 36 inches above the range top. That means, unless you are tall, you will use a short step ladder for the seasonal items stored there.

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Running Hot and Cold Water—

No Kicking at Our House

By **ELIZABETH A. BOARDMAN**

Hot water at the turn of a faucet, anytime of day or night! Who doesn't dream of it if she does not already possess it? My wish of 30 years became a reality summer before last with what is, I believe, a particularly good setup.

Like most folks, we started out on the farm pumping water by hand. In sun or rain, snow or sleet, we lugged pails of it into the house. Every bit of water we heated had to be lifted on and off the stove.

Electric Pump a Morale Builder

When power lines came our way, we drilled a deep well and put in an electric pump. That gave us cold water at the kitchen sink and a boost in morale. It was all we could afford that year.

Two years later we acquired a bathroom. The hot water tank was connected to the coal range. That was fine in winter, but in summer it meant one of two things. Either we had to keep the range going and endure its heat or there was no hot water. Washday, the range ran overtime and I sweltered overmuch.

Now we have put our electric water heater in the basement directly below the coalheated range tank. In winter it takes little electricity—somedays, probably, no electricity—to heat water, since the water entering the electric tank is already hot. I have two tanks of hot water most of the time which is mighty handy on washday and makes me feel like a millionaire every day.

In summer, the water having stood in the upstairs tank, enters the electric tank a little warmer than it would direct from the well. The electric tank takes over and heats it while I cook in a kitchen as cool as the day will allow. I'm looking forward to an electric range. In the meantime I do very well with two hot plates and a roaster oven.

We haven't exact figures to prove it, but as nearly as we can tell the electricity for summer use is just as cheap as the coal. One thing we do know, the comfort and convenience is so great that if the cost is slightly higher there isn't any kicking at our house.

On Storing Lard

Rendering and storing home supplies of lard goes with hog killing time. It will make butchering days easier if you trim, grind then freeze the fat until

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all the meat has been cared for. Then, in about 10 days make up your lard.

Grinding the fat cuts down on the rendering time. And remember that the electric roaster does a perfect rendering job. With heat control and heat around the sides, it takes little personal attention. If you plug it in on the porch, work room, or basement you can also keep the odor out of the house.

Storing of lard can be done in one of two ways:

1. *By freezing*—Fill tempered, sterilized glass or enameled tin containers with lard. Seal air-tight. Freeze and store as you freeze and store meat.

2. *By adding a hydrogenated vegetable fat*—Add 2 to 3 pounds of a hydrogenated vegetable fat to every 50 pounds of lard just before the rendered lard is poured from the cracklings. Mix thoroughly. Pour into small containers. Seal air-tight. Store in a cool, dark place.

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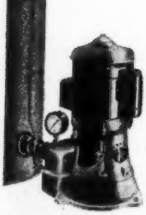

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Questions and Answers

Temperature Alarm for Brooder

▶**Question:** *Is there any thing on the market to connect to a telephone wire that would set my six volt door bell off in case my brooder stove would get too hot or caught fire. The bell is in the house of course, and is connected to a six volt 110 AC transformer.*

J. Z. H., Pa.

▶**Answer:** The Lyon Rural Electric Company, Box 30, San Diego, Calif., make temperature alarms which will operate over a telephone wire and ring your door bell or a similar bell in the house.

Electricity for Water Heating

▶**Question:** *I have an oil burner which heats water for household use as well as heating the house. I have been considering the use of an electrical heater for summer and possibly winter if economical enough. Our electricity here costs us 1½ cents per kw-hr. Have an automatic washer that calls for water at 160° and preferably 170° to 180°. Would such a change be economical? What formulas do you use in figuring the amounts of current and oil necessary to bring water from various degrees of heat to higher temperatures?*

I have a jet pump which furnishes the farmstead with water. Would like to have pressures of from 80 to 100 pounds to use in washing down our dairy barn. It would only be used a couple of hours per day or less. What would you suggest since most pumps that I am acquainted with only run up to 60 or 70 pounds at a high maximum? W. H. G., Md.

▶**Answer:** Yes, I believe such a change would be economical. Combination equipment usually sacrifices efficiency of one or the other function. The prime function of your oil burner is heating the house. While this is being done your hot water costs little more. However, when you aren't heating the house you are wasting a lot of heat. Your burner efficiency is very low for this purpose.

Due to the high efficiency of electric water heaters, approximately 90% of energy supplied is available as heat. The heavy insulation these heaters have retains it.

One kw-hr of electricity provides 3412 Btu of heat. One gallon of fuel oil provides approximately 140,000 Btu of heat. Given a 90% efficiency for electricity, and assuming you get an oil efficiency as high as 30%, then 13.7 kw-hr are equivalent to one gallon of fuel oil. Electric consumption of oil burner and service costs must be added for comparison.

There are two ways I would suggest for you to get high pressure water for washing your dairy barn. One is to use your spray rig, if you have one. The other is to install a little electric booster pump in your barn. A little turbine pump would probably do the job. You would connect the suction of the pump to the water system piping. You would just have to be sure that the centrifugal pump did not have a greater capacity than your water system pump. Your pipes should be large enough so you would not use up all your power in pipe friction.

Wiring Portable ½ HP Conveyor for Use on Different Farms

▶**Question:** *I would like some information regarding the use of a ½ hp motor to run a conveyor chain that is being used on a wagon for unloading hay and silage corn. This equipment will be used on 110 volts on different farms. Would there be any danger of fire if wiring is inadequate or if the distance from outlet is too far. Would an extension cord No. 14 gauge wire plugged into a light socket be satisfactory to use.*

E. R. T., Wis.

▶**Answer:** It would be possible but not advisable to use this motor on 110 volt convenience outlet circuits. An extension cord of No. 14 wire 50 ft long would give reasonably good service. The cord should be one of the heavy duty rubber in-

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sulated and not just a twisted pair of wires. If you get your No. 14 wire much longer than that, your voltage drop will be so great that the motor will not deliver its full power. In trying to do so it will use more current and that would heat up the wire and you would be in difficulty.

If you want to use that motor, the thing for you to do would be to use No. 12 or heavier extension cord and connect it as close to the service entrance as possible. You could use 100 ft of No. 12 wire satisfactorily. Never plug it into a lamp socket. Those sockets and circuits are not heavy enough. It would be still better if you operated the motor on 220 v circuits.

Heat in Bathroom

▶**Question:** *We have a pipeless, hot air furnace with a register directly above the furnace. Recently we installed a 30-gallon tank in the cellar for hot water with a coil in the furnace. The bathroom is about 25 feet from the furnace register with the kitchen in between. We have hot and cold water pipes in the bathroom and to a sink in the kitchen.*

We would like to get more heat in the bathroom. Is it possible and practical to connect some type of radiator in the bathroom? We have a safety valve near the 30-gallon tank. If hot air could be piped directly from the furnace to the bathroom, would that system furnish enough heat in the bathroom without a fan on the furnace? Any advice on this matter will be greatly appreciated. C. C. M., Wis.

▶**Answer:** Perhaps a happy solution to getting more heat in your bathroom would be to place your water tank in the bathroom. Whether that is feasible or not is hard for me to say without seeing the house. You would need to have as straight a run of pipe as possible from the heater coil in the furnace to the tank at the top and from the bottom of the tank back to the furnace coil. Where turns were necessary long radius bends or 45° ells would be preferable to 90° ells. The slope of the pipe would have to be from the furnace coil upwards to the tank without any dips where the hot water could be trapped. If there was room in the bathroom for this tank and you could connect the pipes to the tub, lavatory and sink, the tank itself would act as a radiator.

It is difficult to put a heating pipe on some pipeless furnaces. In addition to the pipe for hot air you would need a return pipe for cold air or you would have to keep the bathroom and kitchen doors open

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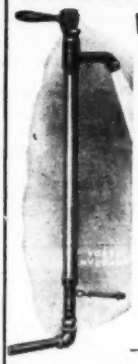

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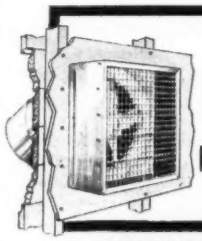

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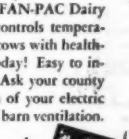

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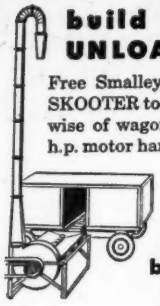

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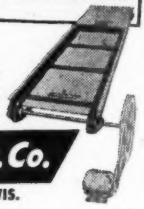

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so the cold air could flow out of the bathroom and back to the furnace.

Here is one other suggestion for getting warm air into the bathroom. It is to put a flue from just under the ceiling or in the ceiling of the living room across to the bathroom and put a very small fan in this flue to draw the warm air into the bathroom. If the floor joists on the second floor happen to run in the right direction that might be an easy thing to do. It would, of course, be possible to run a hot water pipe from your water tank to a radiator in the bathroom and a cold water pipe down to the bottom of the tank. You would have to have a radiator tested for the pressure in your water system and there would be the possibility of the water getting rusty by being passed through that cast-iron radiator. Such a radiator would require an air relief valve to keep it from becoming air bound.

The most convenient and possibly the least expensive way to get extra heat in the bathroom, is with an electric heater or radiator. It could be built into the wall or used as a portable unit.

Heat Pump Efficiency

▶**Question:** *I have read with interest the articles appearing from time to time regarding heat pumps for house heating.*

Do you have efficiency charts or tables illustrating the amount of current used to produce a given number of Btu's for various temperature rises? I was thinking in particular regarding the efficiency expected in using running water at approximate temperature 40° from which to obtain heat.

R. S., Mich.

▶**Answer:** I regret that I cannot give you any efficiency curves on heat pumps. The efficiency is not figured in the same way as it is for engines or motors. What the heat pump does is to transfer heat units from one place to another, namely, from the water to the house. If the water was at 40° I would guess that you might be able to transfer two to two and one-half times as much heat into the house as you could put into the house with an electric heater using the same power. In other words, you would have an apparent efficiency of 200 to 250%. If the temperature of the water to start with was say 60° you might have an apparent efficiency of 500%.

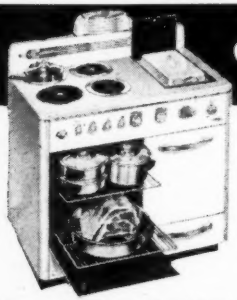
Water Under Pressure from a Spring

▶**Question:** *We have a spring 100 ft from the house that runs an inch pipe full of water. It is piped past the house, 200 ft to a cream cooling tank and stock tank. We carry water from the spring for household use.*

The house proper is 16 ft x 24 ft with no basement. Then there's a 14 ft x 16 ft addition with a basement under it. Is it possible to install water in the house part without a basement? The living room is the 15 ft x 13 ft room over the basement and it is impossible to change its location. We would like to use the necessary water in the house and the overrun for the livestock. Will it be necessary to dig a cistern?

W. H. O., Ia.

▶**Answer:** If your spring furnishes you with plenty of water all year and the pipe does not freeze you could have a small covered tank at the house of, say 10 to 20 gallons capacity. You could dip your supply from this tank. Or, if you would like water under pressure in the house, you could use an inexpensive shallow-well water system taking its supply from this spring tank at the house. In that case the tank and pump should be placed in the basement or protected so it will not freeze. The plumbing could be run inside the



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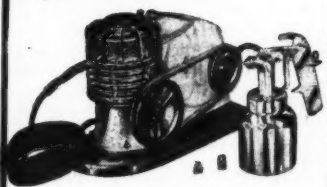

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walls of the house. If your spring gets low in the summer, or if you want enough water for fire protection, you should have a tank of 120 gallons or larger in the cellar or build an outside cistern near the house.

Water Hammer

▶**Question:** *I am writing to ask if you know of any method of eliminating water knock and hammer on a water line. A pressure tank in the basement supplies water to a stool drinking cup at a distance of about 450 ft. When the cup is in use it causes a bad hammer in the lines in the basement. The pressure is the standard 20 to 40 lb.*

I installed two water hammer eliminators in the line near the cup, but with little if any result. There are several right angle turns in the water line, which one would think might eliminate this trouble. I heard of somebody who put a rubber connection at some point in his line to stop the hammer. Can you give me any information along this line? The pipe is ¾ in.
J. L. H., W. Va.

▶**Answer:** We suggest that you install one of the water hammer eliminators in the basement in the pipe which leads out to the barn. In other words, get the water hammer eliminator as near to the place where the noise occurs as possible. If this gives some relief, it might be well to place both eliminators in the basement.

Sometimes animals keep nosing or bumping drinking cups so there is a sound carried through the pipe which is not water hammer. I doubt if this is your difficulty, but if it should be, a section of rubber hose placed in the pipe from the barn might correct the difficulty.

Better open the eliminator and examine to be sure the diaphragm has not been ruptured.

Insulation for Freezer

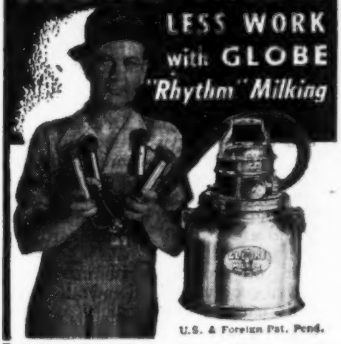
▶**Question:** *I am interested in building a home freezing box. Where may I obtain plans or specifications for a 6 x 6 x 5 ft box (walk-in) inside measurements. How large a motor and compressor should I have? How much fiberglass insulation for the greatest efficiency—or how much if I should use cork?* K. H. R., Mass.

▶**Answer:** We do not have any plans we can send you for building home freezers but you can get good bulletins on the subject:

Extension Bulletin #317 Home Built Farm Refrigerators, State College of Washington, Pullman, Wash.—10c.

North Dakota Frozen Food Unit,

MORE MILK
LESS WORK with GLOBE "Rhythm" Milking



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Circular AE-22, Extension Service, North Dakota Agricultural College, Fargo, No. Dak.

The insulating properties of corkboard and fiberglass are about the same. Corkboard is rather costly at the present time. The thicker the insulation the less power will be required to keep your freezer cold. The disadvantage of thick insulation is getting the box through doorways and also reaching over the thick walls into the box. If I were building a freezer box at home, I would use 5" or 6" of corkboard or fiberglass.

If you provide 6" of insulation with a good vapor seal and a tightly built cabinet and door, I would estimate that you would need about a ¾ hp compressor unit.

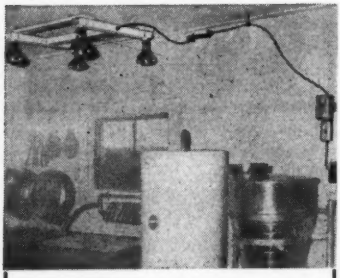
Fisherman's Prayer

Lord give us grace to catch a fish
So large that even I
When telling of it afterwards
May never need to lie.

RADEX

The answer to

MILK HOUSE HEATING!



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New Publications

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• THE FROZEN FOOD COOKBOOK. 494 pp, board covers, no illus, $2.95. Simon and Schuster, Inc, Rockefeller Center, New York 20, N. Y. Edited by staff of Frozen Food Foundation, a non-profit research organization supported by retailers of frozen foods. We read it skeptically, but decided it contained much good information. It's mostly recipes (355 pp of them) involving frozen (could be unfrozen) fruits, juices, vegetables, meats, poultry, fish, shellfish, soups, bakery items, and prepared foods. Excellent list of frozen products and their virtues. Chapters on menu planning with reducing and building up diets. Size, operation and care of freezers. Instructions for home freezing, packaging and storing. Clearly written; understandable; usable.

• G-E PHOTO LAMP DATA. 12 p pamphlet available from photo dealers, free. Film speeds. Descriptions, tables and charts on all GE photographic lamps. Excellent, if you take pictures.

• REVERE SYSTEM OF RURAL WELL PIPING. 4 p leaflet with colored diagrams and much information about use of copper tube for well piping installations. Tells Why and How. Revere Copper and Brass Inc., 230 Park Ave., New York 17, N. Y.

• A STEP SAVING U KITCHEN. 12 pp, illus., USDA, Washington 25, D. C. Floor plan, pictures and sketches of cabinets for different kitchen work "centers." Brief, clear explanations.

• PLANNING THE BATHROOM. 16 pp, illus. Misc Pub 638, USDA, Washington 25, D. C. Floor plans, illus of types of fixtures, cabinets, their arrangement in different shaped bathrooms and in farm house. Brief and understandable.

• RAT CONTROL METHODS. 12 pp. Fish and Wildlife Service, U S Dept of Interior, Washington, D. C. Poisoning and poisons, baits and baiting, gassing, ratproofing, sanitation, and some excellent suggestions on trapping.

• BUILDING AND REMODELING DAIRY BARNS. 32 pp, illus. Maine Exten Service, Orono, Maine. How to improve stables, estimate size and storage space. Details of construction and building methods. Materials; ventilation.

• RUNNING WATER FOR YOUR FARM HOME. 32 pp, illus. Bul P94, Iowa State College, Ames, Iowa. A WHY? and Planning bulletin—from well to septic tank. Estimating water needs, plans for laying out bathrooms, kitchens and laundries. References to other sources of information.

• MAKE YOUR KITCHEN MODERN. 32 pp, illus. Bul P92, Iowa State College, Ames, Iowa. Full of good pictures and sketches showing arrangements and construction of work centers, many cabinets and labor and health saving devices. Novel features for convenience.

• IRRIGATE FOR MORE PROFITS. 42 pp, illus. Bul 542, Georgia Agric Exten Service, Athens, Ga. Full of good facts, data, tables and charts. Takes up costs and results of irrigating in Georgia, water supply, suitable soils, sprinkler and flooding methods, when to irrigate, water needed, equipment used, design of systems, ponds and wells.

• METHOD AND BENEFIT OF CLIPPING DAIRY CATTLE. 8 pp, illus. Brief, full of pictures showing how to clip cows and other animals with electric clippers. Sunbeam Corp., 5600 W Roosevelt Rd, Chicago 50, Ill. 10c.

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